Marine Engineering
And Shipping Age

Vol. XXIX **JANUARY, 1924** **No. 1**

Page

Editorial Comment 1
The President's message. Efficiency of personnel. Another plan for aiding the merchant marine. American rights—are they to be maintained or given up? The development of the structural design of ships. The Leviathan. A good man needed.
Marine Engineering and Shipping Age, January, 1924.

Shipping Problem, Congress Takes Up the..... 5
By "Old Scotch."
President Coolidge declares we must have an adequate merchant marine and pay for its operation until private owners can take over the Government's vessels.
Marine Engineering and Shipping Age, January, 1924.

Credit Union Formed by Marine Engineers..... 6
By B. L. Todd.
Promoting the spirit of saving among seamen believed to be one method of increasing personnel efficiency.
Marine Engineering and Shipping Age, January, 1924.

Shipping and Shipbuilding in 1923..... 8
General review of progress in the marine industries in the United States, Great Britain, France and Germany during the past year.
Marine Engineering and Shipping Age, January, 1924.

Operating Costs, How the Shipping Board Is Reducing 14
Reorganization of departments cuts down overhead. Methods of reducing fuel, subsistence, repair and management expenditures.
Marine Engineering and Shipping Age, January, 1924.

Philippine Trade as Aid to Merchant Marine..... 17
By Vicente Villamin.
Philippines will need 2,000,000 tons of American ships. Manila destined to become America's *entrepôt* for the Far East.
Marine Engineering and Shipping Age, January, 1924.

Motor Liner of 20,000 Tons Ordered..... 19
By Our London Correspondent.
Twin screw 18-knot vessel to be equipped with double acting four cycle Diesels of 20,000 horsepower.
Marine Engineering and Shipping Age, January, 1924.

Motorship La Playa 21
By Our Special London Correspondent.
British-built Diesel electric fruit carrying vessel is first of three sister ships fitted with Camellaird-Fullagar engines. 6 illustrations.
Marine Engineering and Shipping Age, January, 1924.

Motorship Seekonk, Performance of 24
Hog Island steamer converted to motorship shows economy in operation. 5 illustrations.
Marine Engineering and Shipping Age, January, 1924.

Steamship Santa Marta Rejoins Great White Fleet 26
Todd Shipyards Corporation reconditions vessels at Robins plant. Converted to an oil burner. 5 illustrations.
Marine Engineering and Shipping Age, January, 1924.

Page

Motor Tug Hustler 27
Steel tug equipped with Ingersoll-Rand oil engine and electric auxiliaries. 6 illustrations.
Marine Engineering and Shipping Age, January, 1924.

Fireboat Deluge 29
New Orleans fireboat said to be largest and most powerful in the United States. 1 illustration.
Marine Engineering and Shipping Age, January, 1924.

Rudder Manipulation for Efficient Ship Operation. 31
By Elmer A. Sperry, E. D.
Apparatus and method of reducing yaw or rudder angle to cut down mileage run. 8 illustrations.
Marine Engineering and Shipping Age, January, 1924.

Scott-Still Engines for Motorship Dolius 35
By Our Special London Correspondent.
Combined steam and oil motor requires 15 percent less fuel than the normal Diesel type engine. 5 illustrations.
Marine Engineering and Shipping Age, January, 1924.

Ports, How Will Future Growth of Ships Affect?.. 39
By Commander John H. Walsh (C. C.), U. S. N. (Retired).
Discussion of physical relations existing between ships and ports. 3 illustrations.
Marine Engineering and Shipping Age, January, 1924.

Lubricating Materials for Launching Ways..... 44
By Horace Holden Thayer.
Continuation of series of articles dealing with shipbuilding materials and their uses.
Marine Engineering and Shipping Age, January, 1924.

Insurance Writers Get Data from Japan..... 45
By "Bordereaux."
Congestion at Japanese ports. Adjustment cooperative examinations. White Sea to be closed. Collision liability.
Marine Engineering and Shipping Age, January, 1924.

Riveting Hammer, New Ingersoll-Rand 46
Marine Engineering and Shipping Age, January, 1924.

Arc Welding, Applications of, to Ship Construction —VI 47
By E. H. Ewertz.
Results of tests to determine strength of welded joints. Attitude of classification societies towards application of arc welding.
Marine Engineering and Shipping Age, January, 1924.

Questions and Answers 55

Letter to the Editors 56

Personal 57

Shipping and Shipbuilding News 59

Simmons-Boardman Publishing Company
30 Church Street, New York, N. Y.

EDWARD A. SIMMONS, President
HENRY LEE, Vice-President and Treasurer
ROY V. WRIGHT, Secretary
GEORGE SLATE, Business Manager

CINCINNATI: 101 East 4th St.
CHICAGO: 608 South Dearborn St.
CLEVELAND: 4300 Euclid Avenue
BOSTON: 294 Washington St.
WASHINGTON: 815 Transportation Building, 17th and H Sts., N. W.
NEW ORLEANS: 927 Canal St.
LONDON, England: 34 Victoria St. Westminster, S. W. 1.
Cable address: Urasigmec, London.

Subscription price, United States, Mexico and Canada, $3; foreign, $4. Foreign subscriptions may be sent through our London Office, 34 Victoria Street, S. W. 1.

Generated on 2024-09-12 12:17 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Marine Engineering and Shipping Age

Volume XXIX **January, 1924** **Number 1**

Published Monthly by
SIMMONS-BOARDMAN PUBLISHING COMPANY
30 Church Street, New York
JAMES SWAN, H. H. BROWN } Editors
L. S. BLODGETT, Associate Editor W. Z. GARDNER, News Editor

Contributing Editors

Rear Admiral C. W. Dyson, U. S. N. — William T. Donnelly
Commander S. M. Robinson, U. S. N. — H. McL. Harding
William Gatewood — James L. Bates
Captain C. A. McAllister, U.S.C.G. (Retired)

MARINE ENGINEERING AND SHIPPING AGE is a member of the Associated Business Papers, Inc. (A. B. P.), and the Audit Bureau of Circulation (A. B. C.)

Request for change of address should reach us two weeks before the date of the issue with which it is to go into effect. It is difficult, and often impossible, to supply back numbers to replace those undelivered through failure to send advance notice. In sending us change of address, please be sure to send us your old address as well as the new one.

The President's Message

THE clear and forceful character of the President's recent message to Congress has won almost universal commendation.

While his reference to the shipping situation contains no specific recommendation for additional legislation, we are left in no doubt as to Mr. Coolidge's position with reference to the merchant marine. He says, "We must have a merchant marine that meets these requirements, and we shall have to pay the cost of its service." No statement could be simpler or clearer.

Although the President evidently has not in mind any radical departure, for the present at least, from existing conditions, his mind is evidently open and that he is ready to promote any really constructive action cannot be doubted.

Bills have already been introduced in Congress looking to the improvement of shipping conditions by discriminatory duties and tonnage taxes, as well as by the formation of an adequate naval reserve. While present international conditions appear to make favorable action on the former somewhat uncertain, the latter proposal is altogether desirable, and we see no good reason why the different factions in Congress should not unite on this policy and produce some really beneficial legislation.

Turning from the probability of action along either of the lines we have mentioned, there remains the Shipping Board. Political conditions apparently make inevitable the continuation for some time to come of active participation by this body in marine affairs, if the flag is to be kept on the high seas. There are many men of signal ability employed in various capacities by the board, and their work, if properly applied and made use of, cannot fail to be productive of constructive results. The board itself, however, is apparently hopelessly divided, its actions are largely influenced by political bias and personal considerations, and until and unless it is transformed into an efficient, coordinated body, it is futile to expect any permanent and material improvement in shipping conditions.

The President has the power to supervise and regulate the government's participation in shipping affairs; we believe he has the will to maintain the merchant marine, and the country's confidence in his will and his ability to carry it out is growing day by day. With Mr. Coolidge at the helm, all who have at heart the welfare of the American merchant marine may face the future with renewed confidence and the knowledge that in the chief executive they have a strong, straightforward and sympathetic friend.

Efficiency of Personnel

THE manager of one of the large ocean steamship companies recently made the statement that the greatest single difficulty which he experienced in the running of his vessels was the enormous turnover of crews. In other words, the efforts expended in training men were very largely wasted, and it was practically impossible to maintain the high degree of efficiency which can only be attained by thoroughly trained and permanent crews.

We have had no experience in ship operating, but the conditions surrounding the management of industrial plants are familiar to us and entirely bear out this manager's statement. The loss in efficiency noticeable in all branches of industry since the war is undoubtedly due to labor turnover more than to any other one factor.

The problem of interesting men in their work and instilling in them a sense of individual responsibility for its successful prosecution has largely occupied the attention of industrial managers ashore, and there are evidences that it is receiving the consideration of shipping managers as well. It seems almost needless to point out that there is nothing which can contribute more to the efficient and economical operation of a ship than an active, interested and satisfied crew, although past experience seems to indicate in many instances that this is about the last matter receiving consideration. We do not refer to steps taken, mostly as results of legislation, to coddle men and incidentally to interfere with the strict discipline necessary to a well run vessel. What we have in mind are methods by which seafarers may be

Generated on 2024-09-12 12:00 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

influenced to become responsible and self-respecting citizens and by which those who have no other aim in life than to remain "floaters" may eventually be eliminated.

No one thing contributes more to steadying a man and developing in him a sense of responsibility than the possession of a bank account, however small it may be, and we feel that the efforts of the Ocean Association of Marine Engineers to encourage saving among seagoing men, as described elsewhere in this issue, is one of the most commendable movements which has come to our notice and one deserving the hearty support of steamship owners and operators.

The subject of industrial relations is a broad one, and in the past has appeared somewhat outside the scope of this paper. The formation of the Ocean Credit Union has, however, appealed to us as of such importance and as having such a direct bearing upon one of the most difficult problems of steamship management that we wished to bring it specifically to the attention of our readers.

It is our intention to publish further articles along this line, which appear to have a direct bearing upon ship operating.

Another Plan for Aiding the Merchant Marine

IN a recent article on American shipping conditions in the *American Legion Weekly*, Mr. Paxton Hibben proposes the following scheme for building up the merchant marine:

In 1915, the law provided for 51,500 petty officers and enlisted men to man our navy, at a time when we had thirty battleships and were in the midst of a world at war. This year the law authorizes 86,000 enlisted men in the navy, and, under the limitation of armaments agreement, we are held down to sixteen first-class battleships —and the world is at peace. There can, therefore, be enlisted in and paid by the navy about three times as many Americans as are now employed in our merchant service, and still leave plenty of men for the navy. Why not do it, and turn these extra men over as crews of our government-owned merchant vessels, where they will learn more about practical shipping in a month than they will learn in the navy in a year, retaining them as naval reservists, with every protection, right and advantage of men in the navy?

The average cost of these men would, of course, be higher than the wages now paid men on merchant ships. But if the navy should bear, out of its appropriation for enlisted personnel, half of the cost and the shipowners half, the item for wages in the shipowners' operating costs would be reduced to below the wage cost of crews of foreign nationality, while the navy itself on, say, 20,000 men so employed would save some $10,000,000 of your money and mine, per year. The saving to the shipowners would enable them to operate American ships in competition with any foreign ships; and thus, by making shipping profitable, speedily relieve us, as taxpayers, of the annual charge of $50,000,000, the deficit in operating our ships for us, under present conditions.

We, as taxpayers, would save in all over $60,000,000 per year. An American merchant marine would be assured. And, most important of all, the men who would make up that American merchant marine would be Americans, serving under conditions of honor and scrupulous protection of their interests, that would make them eager, instead of reluctant, to go down to the sea in ships.

It cannot be denied that this proposal has attractive features. We believe that the upbuilding of a naval reserve should occupy a prominent place in any legislation looking to the stabilizing of conditions in the American shipping industry, and that along this line lies the greatest promise of success in the present Congress. The possibility, however, of dual control of personnel which Mr. Hibben's proposal would suggest, and the necessity for more or less supervision and regulation of the crews of merchant ships by the naval authorities has rather obvious objections, and for this reason we have some doubt as to its favorable reception by practical ship operators and owners.

American Rights—Are They to Be Maintained or Given Up?

ALTHOUGH there does not appear to be the slightest possibility that the present Congress will enact any legislation giving direct financial aid or subvention to American shipping, measures have already been introduced looking to the adoption of other means of building up the merchant marine.

The questions of discriminating tonnage dues and reduction of customs duties on goods imported in American vessels will shortly receive consideration and the mere mention of the possibility of such action has raised a storm of protest in foreign quarters. The possibility of losing the lion's share of America's overseas trade which they have had for many years is naturally displeasing to foreign shipowners nor can they be blamed for objecting to any measures which might cause the loss of what they apparently have come to consider their own private property.

But America has some rights in the matter and that Congress will give these rights careful consideration we have no doubt. The veiled threats of foreign interests do not carry weight in Washington. They are more likely to arouse active interest in the object attacked than to accomplish the purpose intended. This country has the right to maintain an efficient navy. No one will question that. It has the right to maintain a sufficiently large merchant fleet to carry on its trade in the face of future European disturbances. There is no valid reason for objecting to this.

If we are to have a navy which actually, and not on paper alone, measures up to the standard set by the Disarmament Conference, we must have a large and active merchant fleet. If we are not again to find ourselves in the same helpless condition as regards foreign trade as that which developed immediately upon the commencement of the war, we must have more merchant vessels and more of the trained personnel which goes to make up their crews. The desire that these conditions should obtain is a perfectly legitimate one and foreign nations are bound to respect it. America asks only for a fair share of the business of her own ports—she is not interested in the trade between foreign nations.

In a speech before the Washington Board of Trade on December 11 Commissioner Plummer of the Shipping Board made the present status of the shipping situation pretty clear, so far as its relation to foreigners is concerned. In view of the outcry against any form of discrimination the following statement which he made is of particular interest and must receive careful consideration when the proposed shipping legislation is under discussion:

"Take this scheme which hits our railroads as well as our ships. If an American manufacturer—in Chicago for illustration—ships goods for Australia by way of American railroads to San Francisco and thence by American steamers to destination, he finds upon arrival that in determining the value of those goods for purposes of tariff taxes the Australian customs official adds to the original cost of the goods whatever sum has been paid American railroads for hauling them from Chicago to the vessel at San Francisco. But, he

Generated on 2024-09-12 12:20 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

also learns that if those same goods had been shipped across the continent on Canadian railroads to a British port from which an English steamer could take them to Australia, then their customs charges would have been based on the original cost, but without adding the cost of transcontinental haul by the Canadian Railroad. So the next time he ships he patronizes Canadian roads and British vessels.

"That is why 68 percent of the freight passing through Vancouver in one year was American, while the American steamship line to Australia last year lost from four to five hundred tons of such American freight every voyage. It, apparently, is all right for the foreigner to impose discriminating duties upon goods which have been transported in American cars, but it is all wrong for the American to impose discriminating duties upon goods transported in foreign vessels.

"How England protects herself against such treatment as this is shown by the following legislation enacted by her in 1853, or as soon as we had surrendered the last remnant of that protective legislation which the Administration of Washington had given our ships in foreign trade. This act, after elaborately reciting every possible discrimination which could be thought of, includes this blanket clause:

" 'Or that any preference whatsoever is shown either directly or indirectly to national vessels over British vessels.' "

"That act is still in force and is now being brought forward by British publications as an avowed warning to the United States against any of those indirect aids to our shipping which they are advised may be contemplated by this Congress, which fact shows once more the utter impossibility of devising any effective method of assisting our ships to resume their proper place on the sea which our competitors will not oppose to the bitter end. Of course, they will oppose us; they'd be foolish if they didn't.

"America's ocean carrying trade is the richest single prize in the world's commercial arena, and those who have grown rich by their control of it will never release their grip upon it so long as by hook or crook they can hang on. The great mistake we have continuously made for forty years has been our trying to devise some plan under which competitors will not object to the United States regaining its rightful heritage on the sea."

The Development of the Structural Design of Ships

POSSIBLY no branch of naval architecture has been the subject of more scientific study and mathematical analysis than the structural strength of vessels. The actual development of the design of ships' hulls, however, has been based mainly upon the results of practical experience and the requirements of commercial expediency to the end that the distribution of material and the proportioning of the various members in accordance with the dictates of scientific investigation has had a relatively unimportant part in the process.

A consideration of the various and often somewhat conflicting offices which the different members of a vessel's structure are called upon to perform indicates quite clearly the reason for the more or less "cut and try" methods by which their design has been developed.

The difficulty of reaching a satisfactory solution of problems relating to the structural strength of ships arises mainly from the indeterminate and uncertain nature of some of the factors entering into the calculations. Not only are the forces acting upon a ship's structure when at sea of such a nature as to render their quantitative determination with anything like mathematical accuracy impossible, but the distribution of the stresses set up by these forces among the various members of the structure is not susceptible of accurate determination. If, for example, the entire resistance to longitudinal bending was confined to the shell plating and upper continuous deck, the calculation of stress at any particular point, assuming efficient support of the members involved, would be a comparatively simple matter. It is evident, however, that this amount of material in transverse section is not sufficient and that other longitudinal members are called upon to carry part of the load. Now the connection of these members to the shell and decks, having in view the full development of their strength, is by no means ideal, and there is no way of determining exactly what proportion of the total stress they actually do carry. It seems evident from the comparison of calculations and actual results that the full strength of longitudinal members is rarely, if ever, fully developed and that ships in service under ordinary conditions are not often called upon to resist the theoretical maximum stresses indicated by the usual wave bending-moment calculation.

In small vessels, considerations of local strength call for scantlings which make the stresses due to variation of loading and the action of waves of secondary importance, but in large ones structural design and scantlings must be determined upon a basis of general structural loads, and it would be of the greatest value to know just what relation exists between the theoretical stress as usually calculated and that which the vessel is actually called upon to sustain in service.

If, as has been pointed out, the full strength of longitudinal members is possibly never developed, it may naturally be inferred that in large ships at least the weight of these members might be reduced without detracting from their strength, if proper stiffening and support are provided. The Isherwood system of longitudinal framing is an example of successful scientific development along this line. There still appears, however, to be room for further improvement with transverse framing. Recent modifications of classification rules have greatly lightened this system of construction particularly in respect to the increased frame and solid floor spacing allowed. So far as we know these changes as incorporated in new vessels have produced satisfactory results although it must be remembered that such vessels, theoretically at least, are not so well able to resist bending as those with longitudinal framing.

From the operator's point of view, transverse framing is an advantage when cargo stowage is considered, and it furthermore appears to be a more scientific as well as economical type of support for the sides of the vessel, which form the web of the girder. A combination of the two systems, longitudinal for bottom and decks and transverse for the sides, known as the Millar system of framing, is possibly the best solution of the general problem, from the purely theoretical point of view.

From the point of view of construction, the combined system appears to present some difficulties, particularly in the connections between deck and sides which are important in developing the strength of the girder. It would be interesting to know just how much further the development of transverse framing indicated by recent modifications of classifications might be safely carried.

Assuming that the usual cross section of longitudinal material associated with transverse framing is still somewhat in excess of what is absolutely necessary, the question arises as to what extent the spacing of frames might be increased without seriously impairing the ability of the plating to withstand actual compressive stress.

If the plating between two adjacent frames is considered

Generated on 2024-09-12 12:22 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

as a strut loaded to about 20,000 pounds per square inch of section (approximately the theoretical stress in a large ship supported on a wave of her own length), the application of the ordinary column formulæ seems to indicate that present scantlings give a very considerable margin of safety. The column formulæ, however, are at best an approximation, and their application to the present case would be of doubtful utility were the results not more or less borne out by the behavior of the shell plating of large warships. In the latter the usual spacing of transverse frames is 4 feet and, although this is in combination with a closer spacing of longitudinals than is customary in merchant vessels, the area of unsupported shell plating is much greater and the plating furthermore is considerably less in thickness. Notwithstanding these apparently unfavorable conditions, the plating of the warships is evidently quite strong enough, and it does not seem unreasonable to expect that in time the unsupported plating areas in merchant vessels may be still further increased without requiring an excessive addition in thickness. The tendency of modern ship design is to leave out all unnecessary parts and to reduce weights wherever practicable. It seems altogether probable that still further progress will be made in this direction.

In an interesting paper recently read before the North-East Coast Institution of Engineers and Shipbuilders, Mr. H. W. Curchin traces the development of the structural design of ships and deals at length with the problems which we have mentioned. While Mr. Curchin offers no positive solution of the problem of distribution of stress, and, indeed, it is doubtful if any is possible other than experimental modifications of design, his treatment of the subject suggests interesting fields for further study and investigation. The paper also treats of other matters having a bearing upon structural strength, notably the relation between block coefficient and structural stress, which has always appeared to us a matter having nearly as important a bearing upon scantlings as freeboard and which, so far as we are aware, has received but little attention in this connection.

To the naval architect the subject of strength is of prime importance, and the character of Mr. Curchin's paper is such that we hope the profession may in the future derive further benefits from his investigations and study.

A Good Man Needed

THE President has already shown his ability in constructive action; the probability that a new chairman for the Shipping Board will shortly have to be appointed gives him a further and great opportunity to justify the growing confidence with which he is regarded.

As at present composed, the board will accomplish no definite and constructive work until it is led by a strong and able man, one who commands the respect of all its members, can adjust their differences and coordinate their various and conflicting ideas into a definite and active policy.

We believe that there are men connected with the private shipping activities of the country who could successfully handle this difficult situation, if given proper backing and support.

The President certainly has the confidence of business men—we trust he may find one of these whose appreciation of the opportunity for great public service which it offers will lead him to undertake this task. Once the right man is found, he can rely upon the official backing necessary to make his work effective and to transform this sadly disorganized and ineffective body into some semblance of administrative efficiency.

The Leviathan

WHILE the present condition of American shipping in the overseas trade leaves very much to be desired and the determination of the best means by which this condition may be improved remains an unsolved problem, there is no doubt that a very large proportion of Americans are in favor of the country's keeping in its own hands a reasonable proportion of its foreign mercantile business.

In view of this fact the apparent spirit of unfriendly criticism which frequently appears in the daily press is difficult to understand. That foreign papers should not view America's efforts with favor is to be expected, but the display of a similar prejudice by certain American papers is not so easy to explain.

The operations of the Shipping Board in general have apparently given little satisfaction in any quarter, but the fact remains that it has inaugurated some satisfactory services and is successfully operating certain very important vessels.

The wisdom of reconditioning the *Leviathan* has been questioned, but the work has been done—done well—and the ship has had a most successful season. Notwithstanding this, any minor difficulty in operation, such as occur regularly with any ship in service has been seized upon to form the basis of criticism of the ship and apparently to create in the minds of the general public doubts as to her condition. It was, for instance, recently reported that the *Leviathan's* turbines were in a serious condition, and that, notwithstanding the large sums spent in reconditioning, the ship was to be laid up for an indefinite period for extensive repairs. The facts in the case are that some of the blading of the backing turbines had been stripped, by no means an uncommon experience in turbine driven vessels; that this stripping had in no way affected the performance at sea; that, in fact, the ship has broken her best previous record since the stripping occurred; and finally that it had been the intention before the turbine trouble developed to take the ship out of service for about 2½ months during the slack winter season for a general overhaul, a policy followed with all the large passenger ships. The facts, so far as they bear upon the condition and operation of the ship, are favorable, but they were so presented as to prejudice an uninformed person against the vessel and create doubt as to the ability and honesty of those responsible for her reconditioning and operation—all of which, in this instance at least, is entirely undeserved.

We most sincerely desire to see all of these vessels privately owned and operated. Eventually they will be, but in the meantime who, outside of foreign interests, can possibly be the gainer because of unfair and unjust comment upon their present operation?

Generated on 2024-09-12 12:02 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Congress Again Takes Up the Shipping Problem

President Coolidge Declares We Must Have an Adequate Merchant Marine and Pay for Its Operation Until Private Owners Can Take Over the Government's Vessels

By "Old Scotch"

IN a message replete with other good, plain, common sense suggestions on the many and intricate problems confronting the American people at this time, President Coolidge had the following to recommend regarding our shipping problem:

"Until shipping conditions are such that our fleet can be disposed of advantageously under these conditions, it will be operated as economically as possible under such plans as may be devised from time to time by the Shipping Board. We must have a merchant marine which meets these requirements, and we shall have to pay the cost of its service."

In this brief manner the President disposes of present-day conditions in an admirable way. No definite and practical policy has been put up to him, which would satisfactorily solve the problem of placing the Government vessels in the hands of private owners. Hence the only alternative is, as he suggests, to continue the present system of operation as economically as possible and await results.

Private Ownership the Ultimate Aim

You cannot sell snow shovels in Washington during July and August, and in fact it is doubtful if you could give them away to the ultimate users during the heated period, when people are more interested in fly screens and electric fans. Shipping conditions the world over are just now very much in the same fix as the snow shovels in July, as those who could use additional ships in the foreign trade, or any other trade so far as that is concerned, would hardly accept the Board ships as a gift, if they have to operate them. Hence, for the present at least, why waste time in mourning over the fact that no disposition of the Government's merchant ships can be made. The President plainly indicated his desire to have private companies operate the ships eventually, so he is in line with about every one else who has the interests of the merchant marine at heart.

It is not supposed that the President's term "can be disposed of advantageously" refers entirely to the hope that the Government will receive a greater amount of money for the ultimate sale of the ships. From his well known sincere interest in merchant shipping, it must be taken to mean that, when conditions improve, there will be a greatly improved number of owners and operators ready to take up the task of private operation.

The elimination of waste and the improvement in operating efficiency in all directions are going on rapidly, as all fair-minded men must admit, so that a few months more of the present system of operation will be no real deterrent to our fond hopes of having a privately owned merchant marine, efficiently operated and managed.

Government Fleet Becoming More Efficient

It must not be assumed that all privately operated merchant ships are more economically operated than all of the ships now being run by the Shipping Board, for such is far from the fact. The operation of the Government fleet as a whole shows constant improvement, and there are a number of its vessels being managed and run fully as well as are some of the similar vessels operated under private direction. In the matter of fuel economy, and fuel constitutes the largest single item of expense, it is the opinion of many whose judgment is worthy of consideration that Government-owned ships are being run more efficiently than an equal number of privately operated ships.

The work of the Fuel Conservation Committee, started eighteen months ago by the Shipping Board, is showing most excellent results, and already there are marked decreases in the amounts spent for both oil and coal. In fact some of the leading technical papers in the United Kingdom have editorially commended the conservation work of the Shipping Board's committee and have urged British shipowners to do likewise.

So when the time comes to dispose of our public fleet one of the "advantageous" circumstances attending the sales will be the fact that the new owners will be able to get some splendid engineering talent trained by the Government in the economical use of fuel.

The other point brought out by the President is in admitting that we must have a merchant marine both for national defense and commercial expansion, and that therefore "We shall have to pay the cost of its service."

Paying the Price

How best to pay the cost of this service is consequently the real question of the moment. It has not been solved as yet, but there are bright signs all around which point to ultimate solution in the not distant future. The recent Marine Congress, held in New York, brought out many desirable features to be obtained. The National Merchant Marine Association, the Shipowners' Association, the Ship Operators' Association, the Shipping Board itself and a number of senators and representatives have taken a try at the solution from their various viewpoints. No one set of the many suggestions offered seems to meet all the requirements, else there would be greater unanimity among all the plans offered. It is hopeful, at least, to note that much over half of the items in the various plans offered are in practical agreement by all sources of suggestions. Hearings before the Congressional committees having charge of shipping legislation should evolve a composite bill which will turn the trick and meet the approval of the President and both Houses of Congress.

The various bills now pending will be analyzed in later numbers of this magazine, but for the present it will be well to take a general look over the field, and try to weigh the chances of favorable legislation before this Congress ends.

The Situation in Congress

It must not be taken for granted that shipping legislation will occupy the prominence in this Congress that it did in the preceding one. The lamented President Harding, one of the stanchest advocates of an American merchant marine who ever occupied the White House, early announced that the placing of American shipping in its proper place, to comport with other American industries, would be the paramount issue of his administration. Backed up as he was by very large majorities of his own party in the Senate and House, it appeared for a time that his aim would be realized. The obstructive tactics which the ill-fated Shipping Bill met in the Senate, after its triumphant passage in the lower House, and which resulted in no action, must be taken as a warning for the future.

Generated on 2024-09-12 12:02 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Now, although President Coolidge is heartily in favor of placing the merchant marine on a permanent basis, he is confronted with a Congress in which the administration forces, although nominally in the majority, cannot be depended upon to pass administrative measures. An element in both houses is sufficiently numerous to block any legislation which does not meet with their approval, as has already been demonstrated. Most of these members are primarily interested in legislation which will benefit the farmer. Fortunately for us the American farmer has recently awakened to the fact that his interests are vitally dependent upon cheap transportation of grain and other farm products to markets overseas. He has given the subject very intelligent attention and now realizes, as we all do, that unless a sufficient amount of American tonnage is maintained in our foreign trade, conditions may arise at any time where combinations of foreign tonnage might easily be made to place freight rates on American farm products which would debar us in the keen competition, already here, from being able to sell our products in competition with other nations which produce the same food products upon which our farmers depend. If he cannot sell his surplus abroad, his conditions will be even worse than they are at present. Hence it is only fair to assume that the representations from farming districts will take a keen interest in all legislation looking towards the permanency of a goodly tonnage of American owned and operated vessels in the foreign trade.

The same incentive should appeal to the representatives from the South, as they had a heart-breaking experience, due to the lack of American bottoms in which to market their cotton and other commodities, just after the outbreak of the Great War, when all foreign tonnage was, for a time, withdrawn from serving our industries.

Shipping legislation should never be of a partisan nature. It is just as much a national issue as our diplomatic service, or our Army and Navy.

It must be remembered that the Democratic party started the Shipping Board and built the great fleet we now have on our hands. While they objected, as a party, to the so-called subsidy bill in the last Congress it is only reasonable to expect that now they will join with the administration forces and help to devise means whereby we may dispose of our great fleet and make its permanent operation attractive to private shipowners. During the debate on the subsidy bill many Democratic senators expressed themselves as patriotically interested in placing our flag on the seas but could not support the then pending means for accomplishing it. Already some minority senators have introduced bills embodying their ideas as to how the problem may be solved and they contain some excellent thoughts on the subject.

Now is the time to forget all partisan bias and get together on the best means for having a merchant marine which will protect and help expand our industries and serve as a very vital factor in our scheme for national defense on the seas.

Ocean Credit Union Formed by Marine Engineers

Promoting the Spirit of Saving Among Seamen Believed To Be One Method of Increasing Personal Efficiency

By B. L. Todd*

THE fact that there is so much financial distress among seafarers' the world over must lead those interested to feel that it has a direct bearing upon the personnel efficiency in our ships.

Captain R. D. Gatewood, speaking at a luncheon of marine men a short time ago, told of his surprise on taking charge of the department of maintenance and repair for the United States Shipping Board to find an utter lack of any ideal of a real American merchant marine, among all classes connected with shipping. There is need for improvement in all lines, selfish interests must be set aside and better quality and better service furnished by the manufacturers, builders, supplymen, operators and the personnel aboard ship.

The Ocean Association of Marine Engineers, New York, is anxious to aid in this betterment and, as the scope of the work of this organization is principally involved in the conditions of the marine engineers in the ships, its officers are naturally concerned with matters pertaining to personnel. While they feel that the employees in the ships may be somewhat to blame for the existing low morale they also feel that there is a reason and are positive that there is a remedy.

The old familiar sentiment, "Strike up the band, here comes a sailor," tells the tale in a few words. Add to this, unemployment, hard times in shipping and the continual changing in crews and we have the direct causes of the financial distress among seafarers. Along with this comes a lack of interest in their work aboard ship and in the ideals which are necessary to insure a real American merchant marine. This attitude gives growth to the ever present idea that a gulf exists between the employer ashore and the employee afloat. It is also one of the reasons why so many seafarers fall prey to the propaganda of the radical organizations. It all means that the men suffer, the ships suffer and the American merchant marine in the end is the big loser.

Many references have been made to the cause and the result of this condition, but few have taken an active interest in the remedy. The Ocean Association of Marine Engineers realize that the great question in our fleet is one of personnel efficiency, and that whatever effort is made, if it is to be successful, must come from the men themselves. The Association's close contact with these men through years of prosperity and of depression, has convinced the leaders that the great need of seafarers is education along the lines of thrift, to the end that they will systematically lay aside as much as possible of their earnings to carry them safely through such periods of unemployment as come with depression in shipping and with that ever constant system of changing crews.

It has been found that sailors who have accumulated a bank balance, however small, are more ambitious, have greater interest in their work, and a firm desire to follow the sea until they reach the top in their chosen department. This naturally means that the time otherwise wasted ashore must be devoted to study and other forms of self improvement.

ENGINEERS' CREDIT UNION FORMED

With the aid of the New York State Banking Department and the Russell Sage Foundation, the leaders of the Ocean Association of Marine Engineers have been enabled to study at close hand the different forms of banking institutions

* President, Ocean Credit Union and secretary, Ocean Association of Marine Engineers, New York.

Generated on 2024-09-12 12:18 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

which would best fit the needs of their members and, after careful study, decided on the credit union as the best medium to aid the seafarer to improve his condition by his own effort and to educate him to the value of thrift. This form of institution is cooperative and is owned and operated by the men themselves, under the supervision of the New York State Banking Department.

Credit unions are usually organized in a large industrial, fraternal or labor organization, because of the fact that the state law allows of practically no overhead. No officer or member of a committee may receive a salary and usually rent is furnished so that every opportunity is offered to the members to obtain the greatest return possible on their savings.

The union is a bank in miniature in which the members own the shares, use it as a savings bank and also as a business bank to which they can go with their different forms of collateral and make such small necessary loans as they might need.

LIMIT OF LOANS AND DEPOSITS

As the limit of deposits and loans is set at $2,000 per member, for all credit unions, in New York State, therefore the whole endeavor of credit unions is simply one of systematic savings. The shares, having a par value of $5, can be paid for in weekly or monthly instalments, and loans can also be repaid on the same plan. The credit unions in New York State have practically set a standard for paying 5 percent interest for the money on deposit. Statistics show that from 6 percent to 8 percent is earned for the shareholders.

Not only are credit unions operated directly under the control of the state banking department, but the state law places between the credit union and the banking department a supervisory committee of three, which has to audit the books, and has power to discharge officers or committees; in fact, stop the credit union if, in their judgment, it is not operating efficiently in the interest of the share holders.

SUCCESS OF OCEAN CREDIT UNION ASSURED

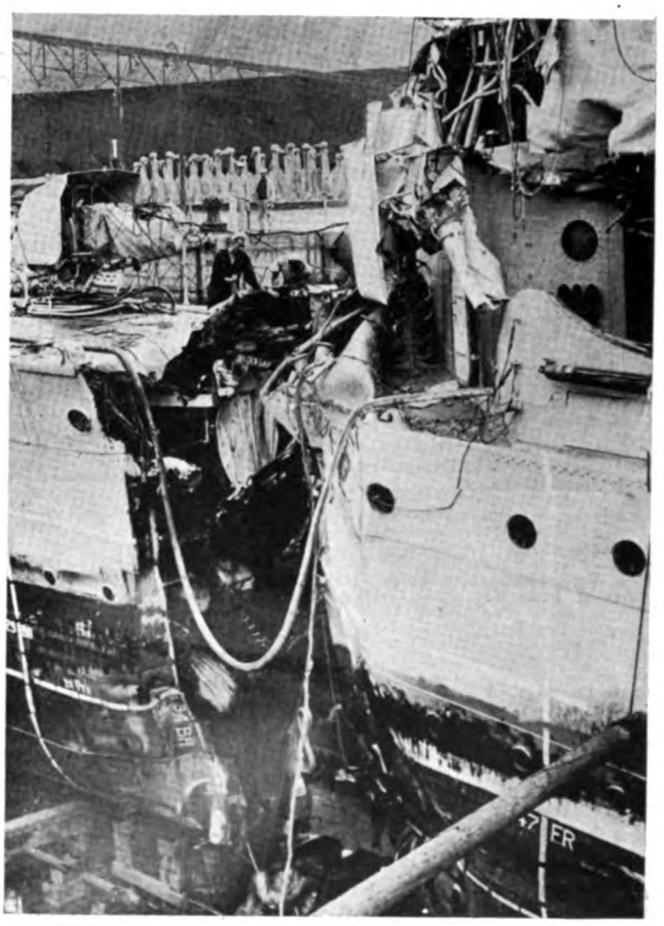
The Ocean Association of Marine Engineers has organized the Ocean Credit Union, and has received an authorization certificate from the New York State Banking Department. Any seafarer or employee ashore is allowed to become a share holder. How well this small banking institution has been received by the men is demonstrated by the fact that only a few days after the authorization certificate was in the hands of the officers thousands of dollars had been subscribed and a considerable amount paid in.

The association leaders realize that the problem is not only one of educating the seafarer along lines of thrift, or of operating a banking institution, but principally of devising means of getting the bank to the men in the ships. Plans are being formulated with the end in view, that when the paymaster arrives, an official representative of the Credit Union will be there also, so that the seaman can deposit in his own bank before he has had the opportunity to go ashore and spend his money in the many ways which are not only of no benefit but are actually detrimental to him. Probably many seafarers would possess bank accounts were it not for the fact that they are paid off aboard ship at the waterfront, usually after banking hours, and before they can find time to get to a savings bank during working hours their money has been, all too often, foolishly spent and nothing left to save.

There has been that prevailing feeling among men who go to sea, that in each port it is necessary to go ashore and spend all that they can possibly draw, in most cases, uselessly, knowing that they can go back aboard the ship with no board to pay, with everything furnished to them, forgetting that possibly at the end of the voyage they will be discharged, thrown upon the beach, possibly in foreign ports, with only the accumulation of a few days' wages, which soon evaporates. Anyone familiar with shipping must realize the absolute necessity of such an institution as the Ocean Credit Union.

YOUNG AMERICA LOOKS TO THE SEA

One should also realize that every year hundreds of young American boys drift to the waterfront, lured either by their desire to see the world, or to serve apprenticeships in the engine rooms, others come from the classes that graduate each year from the different schoolships. These boys, from good American homes, with high ideals, are thrown into the maelstrom and in so many cases rapidly acquire habits that lead to following the line of least resistance. Men who have given this problem much thought feel that these young men can be started out with the idea of thrift and a realization that they can see all the things worth while in any foreign port, with little expenditure of money and with a determined idea in their minds of systematically setting aside a certain amount of their wages, however small, so that when they graduate and become officers aboard ship, this little bank account will give them that spirit of independence which brings with it the necessary ambition and desire to study which will make of them better officers. It is sincerely hoped that the companies, the masters, and the chief engineers, will assist the officers of the Ocean Credit Union in interesting every man-jack under them in seeing how much of his earnings he can save. They will thus do their bit, not only in making better men and better citizens, but also a much finer personnel for our American merchant marine.



(Photograph by Keystone View Co.)

Damage to U. S. Destroyer McFarland Rammed by U. S. S. Arkansas off Cape Cod

Generated on 2024-09-12 12:01 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Shipping and Shipbuilding During the Past Year

The year 1923 has been marked by a general depression in the ocean carrying trade, and during this period shipbuilding has reached what will probably be its lowest level. In this country, although some improvement in maritime affairs is expected, the outlook depends largely upon the adoption by the Administration of a definite shipping policy. The shipbuilding industry in Great Britain received its greatest setback by a nine months' strike of the boiler making trades. With the settlement of the strike in November, however, a noticeable improvement was made in ship construction which is expected to continue. The unstable state of marine affairs has been reflected in French shipping, but optimism in that country is high and the belief general that the crisis is over and a real improvement will be felt during 1924.

In the United States—

For the first nine months of the year, vessels flying the American flag have carried 40 percent of the total ocean-borne foreign commerce, which indicates the tendency for our ships to control at least a fair proportion of the trade which rightfully belongs to them. American shipyards during 1923 built 252 vessels of 100 gross tons and over with a total gross tonnage of 238,244.

THE greater percentage of ship construction for the year 1923 in the United States, as reported, has been carried on in 27 shipyards which number includes the old-established yards which might have been expected to survive the serious depression in the shipping industry. In practically every instance ship repair work played an important part in keeping the yards on an active basis while a number of plants have devoted considerable attention to the construction of fabricated steel products, tanks, to locomotive repairs and similar lines for which shipyard equipment is well adapted.

As noted, the total gross tonnage for the year has been 238,244 in 252 ships. The total horsepower for this number is given as 96,450.

Vessels Under Construction

In the month of December, when the construction data were compiled, records of 250 vessels in various stages of completion were received. These ships total 174,343 gross tons with a horsepower of 102,840.

Naval Vessels Built in Private Yards

The Limitation of Armaments Treaty with the resulting 5-5-3 ratio of the principal naval powers completely closed the chapter of war requirements for naval construction. The work remaining to be completed since the treaty was made has been concentrated in 5 yards. Fifteen vessels of the scout cruiser and superdreadnought types have been commissioned during the year. These vessels have a total of 114,196 tons displacement and an aggregate horsepower of 627,300.

Eleven vessels still remain to be completed in private yards with a displacement tonnage of 119,788 and with machinery of 720,000 horsepower.

Table I.—Merchant Vessels Completed in 1923

Shipyard	Number of ships	Total gross tonnage	Total horsepower
Alabama Dry Dock & Shipbuilding Co.	9	.....	.....
American Bridge Co.	85	37,300	.....
American Shipbuilding Co.	5	39,115	11,400
Ballard Marine Railway Co., Inc.	5	1,265	.....
Bath Iron Works	4*	3,414	2,400
Bethlehem Shipbuilding Corp., Ltd.	11	23,087	10,700
Dravo Contracting Co.	28	13,437	.....
Dubuque Boat & Boiler Works	6	1,800	.....
Federal Shipbuilding Co.	7	18,000	4,700
Great Lakes Engineering Works	4	11,458	3,700
Green Bay Dry Dock Co.	1	170	150
Humphreys Railways, Inc.	1	250	300
Johnson Dry Docks & Shipbuilding Co., Inc.	5	873	1,600
Kelly-Spear Company	2	2,068	.....
Los Angeles Shipbuilding & Dry Dock Co.	2	3,307	2,500
Manitowoc Shipbuilding Co.	1	205	700
Marietta Mfg. Co.	12	3,080	4,800
Nashville Bridge Co.	15	.....	.....
Newport News Shipbuilding & Dry Dock Co.	6	11,600	5,400
New York Shipbuilding Corp.	10	9,502	2,700
Pusey & Jones Co.	5	3,985	8,000
Staten Island Shipbuilding Co.	6	5,233	8,250
Sturgeon Bay Dry Dock Co.	3	2,010	2,550
Sun Shipbuilding & Dry Dock Co.		28,666	16,800
Todd Shipyards Corp.	1	4,500	5,600
Toledo Shipbuilding Co.	2	12,214	3,600
Chas. Ward Engineering Works	9†	1,705	600
Total	252	238,244	96,450

*Includes 3 lightships for U. S. Government.
**Includes 2 Army dredges.
†Includes 1 Government vessel.

Table II.—Merchant Vessels Now Under Construction

Shipyard	Number of ships	Total gross tonnage	Total horsepower
American Bridge Company	101	36,200	.....
American Shipbuilding Co.	3	22,500	23,300
Ballard Marine Railway Co., Inc.	5	1,365	.....
Bath Iron Works	4*	2,500	1,100
Bethlehem Shipbuilding Corp., Ltd.	10	24,675	24,480
Dravo Contracting Co.	52	13,829	.....
Dubuque Boat & Boiler Works	27	4,000	.....
Great Lakes Engineering Works	1	8,500	3,000
Great Lakes Towing Co.	2	200	1,500
Green Bay Dry Dock Co.	5	600	500
Hanlon Dry Dock & Shipbuilding Co.	1	2,500	1,400
Los Angeles Shipbuilding & Dry Dock Co.	1	2,600	3,600
Manitowoc Shipbuilding Co.	3	6,000	6,000
Marietta Mfg. Co.	1	350	1,100
Nashville Bridge Co.	3	.....	.....
Newport News Shipbuilding & Dry Dock Co.	3	11,000	9,950
New York Shipbuilding Corp.	8	12,910	5,100
Staten Island Shipbuilding Co.	4	597	1,580
Sturgeon Bay Dry Dock Co.	1	.....	750
Sun Shipbuilding & Dry Dock Co.	9**	17,977	8,900
Todd Shipyards Corp.	1	7,000	6,000
Toledo Shipbuilding Co.	1	8,000	2,500
Chas. Ward Engineering Works	4†	2,090	2,080
Total	250	185,343	102,840

*Includes 3 lightships for U. S. Government.
**Includes 2 Army dredges.
†Includes 3 Government vessels.

Table III.—Naval Vessels Completed in 1923

Shipyard	Number of ships	Total displacement	Total horsepower
Bethlehem Shipbuilding Corp., Ltd.	8	13,496	90,000
Wm. Cramp & Sons Ship & Engine Building Co.	2	14,200	180,000
Newport News Shipbuilding & Dry Dock Co.	1	32,600	28,900
New York Shipbuilding Corp.	1	32,600	28,900
Todd Shipyards Corp.	3	21,300	300,000
Total	15	114,196	627,800

Table IV.—Naval Vessels Now Under Construction

Shipyard	Number of ships	Total displacement	Total horsepower
Bethlehem Shipbuilding Corp., Ltd.	7	54,988	270,000
Wm. Cramp & Sons Ship & Engine Building Co.	3	21,300	270,000
New York Shipbuilding Corp.	1	43,500	180,000
Total	11	119,788	720,000

Generated on 2024-09-12 12:05 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

INCREASE IN CARRYING TRADE

For the first nine months of the calendar year 1923, American flag vessels transported 49 percent of the country's imports and 30 per cent of the country's exports, or 40 percent of the total ocean borne foreign commerce, according to the monthly statement just issued by the Bureau of Research of the United States Shipping Board. This excludes consideration of shipping on the Great Lakes, but includes the large movement of petroleum in tank vessels. On a basis of dry cargoes alone, still exclusive of the Great Lakes, American flag vessels transported 31 percent of both inward and outward cargoes.

The trend of commerce presents several interesting features. The total export business measured in tons of shipping weight was lower for the month of September than in any month since the resumption of post-war shipping activities, and this falling off is entirely in the overseas trade. For the calendar year 1922, our overseas dry cargo exports averaged more than two million tons a month and aggregated for the year nearly twenty-six million tons. For September, 1923, they were but slightly over a million and a half tons. On the other hand, our overseas import of dry cargoes has exceeded a million tons a month, with the exception of one month, since the middle of 1922, whereas up to that time it had averaged but slightly over 600,000 tons per month.

One especially interesting feature is the increasing share the minor maritime flags are gaining in our foreign commerce. We are accustomed to measure the difference of our operation costs on the basis of the British merchant marine, neglecting the fact that other countries have costs much lower than the British and are especially favored at present by their depreciated exchange rates.

Of our total dry cargo import trade, in 1922 British ships carried 31 percent and all other foreign flags carried 34 percent. For the first nine months of 1923, British ships carried 28 percent, while other foreign flags carried 42 percent. The same thing is true with our export movement. In 1922 British ships carried 31 percent of the total and other foreign nations, 35 percent. Up to the end of September, 1923, British vessels were averaging 30 percent, while the figure for other foreign countries had increased to 39 percent. Even in the tanker business, which has been heretofore almost monopolized by American flag tank ships, the percentage carried by other foreign flags than British has grown from 6 percent of the import movement in 1922 to 12 percent in 1923, and from 20 percent to 23 percent in the export movement.

The fact that the growth is taking place in foreign flags other than British, and that British shipping, if anything, is falling off, shows the advantage enjoyed by the shipowners of foreign nations who are able to pay low wages in depreciated currency in the present time of extremely low ocean freight rates.

OCEAN PASSENGER TRAFFIC

The quarterly report of passenger traffic by sea just issued by the Bureau of Research of the United States Shipping Board for the third quarter of 1923 reflects the opening of the new quotas in the immigrant movement. A total of 97,728 third-class passengers entered the country during these three months and 18,411 departed. Of the entering third-class movement, 27,011 came from the United Kingdom, 40,428 from Germany and Northern Europe, 11,363 from Atlantic coast ports and 14,398 from Mediterranean ports. These figures, of course, indicate solely the ports of embarkation and have no significance as to the nationality of the passengers.

A striking fact is the size of the passenger traffic between the United States and its possessions and nearby foreign countries. Twelve thousand six hundred passengers traveled between the United States and Alaska; 7,745 between the United States and Hawaii, and 4,469 between the United States and Porto Rico. The first-class passenger movement between the United States and all of Europe totalled approximately 35,000 passengers for the quarter. During the same period the West Indies and Central America supported a movement of first-class passengers exceeding 25,000. The total movement by water of first-class passengers to and from all overseas countries totalled for the quarter 44,446. The total first-class movement by water to Canada, Central America and the islands and countries bordering on the Caribbean was 148,294.

COAST TO COAST SERVICE DEVELOPING

During the quarter a total of 500 passengers were moved between the east coast and west coast of the United States, 422 of whom were first-class passengers. With the three vessels of the International Mercantile Marine entering this trade, this service will probably show marked increase in the next three months.

Continued growth is shown in the intercoastal freight traffic between the Atlantic and the Pacific Coasts of the United States via the Panama Canal. Figures for the third quarter of 1923 show a total movement of 3,365,000 long tons of cargo as compared to 3,204,000 for the preceding quarter. This represents a gain of 161,000 tons. The majority of this intercoastal movement consisted of petroleum in bulk moved in tank steamers from the Southern California fields to Atlantic or Gulf coasts. During the quarter ending September 30, 1923, this movement totalled 2,208,000 tons as against 2,011,000 for the previous three months. The gain in oil movement was, therefore, 197,000 tons, and more than accounted for the gain in the total movement. Exclusive of oil in bulk, the general cargo movement showed a slight falling off.

On September 30, 1923, there were engaged in this trade five passenger vessels; one hundred fifty-one cargo vessels and one hundred eleven tank steamers, a total of two hundred sixty-seven vessels aggregating 1,744,987 gross tons.

In Great Britain—

The uncertainty which has overshadowed shipping and shipbuilding in 1923 remains unchanged except for minor developments. New shipbuilding contracts are being backed financially by the Government.

By Our London Correspondent

THE shipowners and shipbuilders of Great Britain will remember 1923 as a year of uncertainty. There have frequently been threats or promises of a pretty substantial rise in freights which would enable owners to consider seriously the placing of new contracts, but the actual freight advances have been only of such measure as to justify the ordering of a comparatively meager number of vessels, either "tramps" or liners. Then again, so far as the shipbuilding industry is concerned, the overtime dispute with the Boilermakers' Society proved one of the formidable obstacles to advancement that builders have experienced for many years past. Month after month the trouble dragged on, despite more or less earnest efforts of those principally concerned to terminate the struggle. The shipbuilding output of United Kingdom shipyards—already low in consequence of the great freight depression and the resulting dearth of orders—must, therefore, inevitably have been prejudiced by this lock-out of the boiler makers, and new contracts, if only a few, have undoubtedly been lost, mainly to Continental and Scandinavian builders, whose labor

Generated on 2024-09-12 12:04 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

position, in regard to wages and also hours of employment, has again and again been proved to be more of an economic proposition than has that of United Kingdom builders and engineers. Quite apart from labor troubles, however, there is the indisputable fact that the harbors of the world are in some instances chock full of idle shipping tonnage, a circumstance which alone would deter any experienced shipping man from contracting for new boats, except, of course, when it is essential that his fleet should be kept up to standard with vessels of a special type.

BILLS OF LADING

The position in regard to bills of lading may be summed up in the expression of opinion of the recent Imperial Economic Conference that, "the Conference having examined the rules relating to bills of lading recommended by the International Maritime Conference held in Brussels in October, 1922, and embodied in the Carriage of Goods by Sea Bill now before the British Parliament, is of opinion that in all essential principles they are based upon the Canadian Water Carriage of Goods Act, 1914, and the report of the Imperial Shipping Committee, 1921, and, believing that there is a good prospect of international agreement in regard to bills of lading on this basis which would be of benefit to every part of the Empire, considers that these rules can be recommended for adoption by the governments and parliaments of the Empire."

Then as to State immunity from taxation of shipping property, matters were slowly but surely heading towards a grand assault on this principle, and the Imperial Economic Conference recommendation that "the draft convention on the immunity of State-owned ships adopted by the meeting of the Maritime Law committee of the International Law Association, held at Gothenburg in August last, and amended after consultation between the British Admiralty and the Board of Trade, should be adopted throughout the Empire as a basis on which an international convention might be concluded," has been warmly endorsed in shipping circles.

TAXATION AND PORT CHARGES

Progress has also been made in one other matter affecting State interests, and that is in regard to taxation. The most satisfactory feature was undoubtedly the decision of the British Government to agree to fall into line with the United States in the matter of reciprocal exemption. The Australian Commonwealth Government has also figured prominently in respect of taxation, but, while certain concessions have been granted, it is undoubtedly a matter for regret in shipping quarters that the Commonwealth Government adheres to its right to tax profits earned within the country. The contention of shipowners has been, and remains, that profits, if any, earned by shipping property are earned on the high seas, and that therefore only taxation in the country whose flag the ship flies should be imposed.

The question of port charges has been a very thorny one for shipowners. Allegations, apparently well substantiated, have been made against certain British ports, especially in comparison with some of the Continental and Scandinavian ports, but there is some satisfaction to be gained from the fact that the responsible authorities in Great Britain have the matter well in hand, and rather radical changes are looked for, and expected, at no distant date.

AGREEMENTS FOR RESTRICTED SERVICES

A significant move in regard to regulating shipping services during "off," or dull, seasons was a notable feature of the closing months of the year. It was, however, as early as July that it was first suggested that services might well be restricted, temporarily or otherwise, with every regard, of course, to the convenience of passengers, shippers and mails. It was pointed out that during off seasons many more passenger liners and cargo vessels than trade warrants are in commission, but it was realized that any restriction scheme, to be successful, would have to be dealt with internationally. Obviously, the difficulties were numerous, but credit undoubtedly redounds on those who eventually brought about a partial realization of restricted services. This, of course, refers to the Cunard-White Star, the Red Star Line-Holland America Line, and the Norwegian American Line agreements, under which the various companies agreed either to pool their services or make other mutually satisfactory arrangements. Thus, a start has been made in a matter of far-reaching consequence, that is, of course, if shipowners still feel that there is anything at all in the idea of services throughout the world being pooled, no matter what the nationality of those participating in the trade may be.

GOVERNMENT AID FOR SHIPPING

Suggested State aid loomed large in shipping affairs at odd times during the year under review. One plan was that the government should make an annual grant of about two and a half millions sterling to provide for the total extinction each year of a million tons of obsolete craft. Apart from the idea being received with approval in governmental quarters, however, there was an almost complete absence of favorable response in shipping and shipbuilding circles, where any such artificial measures, however honestly intentioned, are looked on as potential producers of more harm than good.

Another plan was that, with the larger volume of motorship tonnage which Great Britain will eventually require if she is to hold her position in the sea carrying trade, the government should place national credit at the disposal of the shipowners in order to enable more motorships to be constructed. But here again the State aid enthusiasts drew a blank, and the matter has not proceeded beyond the "discussion" stage.

There is, however, one direction in which both shipowners and shipbuilders have benefited as a result of State financial assistance, and that is in regard to grants under the Trades Facilities Act. This measure is essentially to advance money to responsible undertakings—that is, those offering good security—who will repay all of the money which is lent to them for the purpose of providing work for the million-odd unemployed. As a result of this Act, a few millions sterling have been advanced, and will be expended on the construction of high-class mail boats for one or two of the leading British companies. Furthermore, the Bank Line, managed by Messrs. Andrew Weir and Company, availed themselves in November of a grant of £1,800,000 in order to lay down 21 motorships.

MOTORSHIPS

On the subject of Diesel-engined vessels, as compared with boats driven by steam reciprocating or other methods of propulsion, it is an undisputed fact that shipowners, more than ever before, are inclined to admit that the "possibilities" of this type of craft are at least worth the closest consideration. Proof of this is revealed in the orders which, in the past 12 months, have been placed by owners whose views on the adoption of the principle had hitherto been decidedly conservative. This "conservatism," it may be explained, took the form of letting those who wished do the "pioneer" work,

	Oct. 1, 1922		Jan. 1, 1923		April 1, 1923		July 1, 1923		Oct. 1, 1923	
	No.	Net tons	No.	Net tons	No.	Net tons	No.	Net tons	No.	Net tons
England and Wales....	377	666,999	353	633,818	282	492,054	324	636,774	342	687,343
Scotland	41	62,581	37	86,153	27	52,146	27	63,853	31	39,746
Ireland	38	95,044	21	12,227	12	2,355	21	8,475	22	28,012
[illegible]	456	824,624	411	732,198	321	546,555	372	709,102	395	755,101

Generated on 2024-09-12 12:03 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

though, while this might be a commercial proposition for the non-pioneers, obviously it did not lend to greater research or swifter results. As to the voyage operations of the Diesel boats, the additional initial cost, in comparison with that entailed in ordering some other kind of craft, has all along proved a stumbling block in the pathway of the new type. However convinced shipowners may be that ultimately, despite the extra first cost, the Diesel ship pays, there are those among them who firmly refuse to contract for such vessels until the initial building outlay is more in line with that of other types.

SHIPBREAKING

The shipbreaking industry has more or less come into its own again, but, from the industrial point of view of Great Britain, there is little satisfaction to be gained from this. The breaking-up part of the shipping enterprise is not one of Britain's strong points, and, in view of rate of exchange vagaries and the differences in the rates of wages paid to workers in the respective countries, it is hardly surprising that the Continent has secured the lion's share of what breaking-up contracts have transpired. In fact, Italy and Germany may be said to take the lead with ease in regard to the number of boats acquired for the purposes of breaking up. From time to time, however, the "scrapping" process does not actually take place, the "breakers," after patching up the vessel, being satisfied to realize a small profit. The vessel thus finds herself once more competing on the world's freight markets.

IDLE TONNAGE

This brings me to a review of the laid-up tonnage in the United Kingdom. Figures showing the volume of the idle tonnage are, as is probably well known, compiled quarterly by the Chamber of Shipping, so that it is not possible to give later statistics than those for October 1. Viewing the year broadly, however, the position on October 1, 1923, while worse off than nine months previously, showed a decided improvement on a year back, as will be gathered from the following analysis:

It will thus be seen that while, on October 1, 1922, the laid-up tonnage represented 824,624 tons, by October 1, in the past year this figure had receded to 755,101 tons.

FREIGHT RATES

As to rates of freight, the position during the first ten months of the past year will be seen at a glance from the subjoined "index number":

	A.	B.	C.
January	29.42	24.09	74.33
February	28.91	23.90	73.91
March	29.37	23.75	73.49
April	32.22	23.90	72.66
May	30.77	23.53	70.99
June	28.68	21.81	70.57
July	27.61	20.92	70.57
August	25.03	20.17	71.40
September	26.43	19.42	72.24
October	27.33	19.42	73.08

A.—Freights. B.—Time-charter. C.—"Labor Gazette" cost of living.

A review of British shipping and shipbuilding in 1923 may, perhaps, be fittingly summed up by allusion to the attention paid by Mr. Stanley Baldwin, Prime Minister, during the course of his Protection Election campaign in the closing days of the year. "Since 1914," he said, "British Empire tonnage has increased, mainly owing to the Dominions, by 5 percent, but during that time every maritime Power, with the exception, easily understood, of Greece and Germany, has seen a far greater proportionate increase. . . . While the British tonnage only increased by 5 percent, the tonnage under other flags has increased no less than 43 percent. But that is not all. We must look at the relative ages of the tonnage and see how far modern methods have been adopted. While of the world's tonnage no less than 35 percent is less than five years old, Britain has only 29 percent of that age, and France, Japan, Holland, Germany and the United States have all a greater proportion of new ships than we have. One other point. Since the war broke out there has been a great development in the use of oil. Today, the percentage of world's tonnage driven by oil is nine times what it was nine years ago, and Great Britain has less than one-half of the oil-driven tonnage possessed by America."

In France—

The shipping slump appears to have ended, the freight situation is improving, and a vigorous campaign, backed by the Government, is under way for the development of the French merchant marine. The outlook for the large steamship companies shows improvement, but the shipbuilders are seriously handicapped by the lack of orders.

By Our Paris Correspondent

WHILE the severe depression which has prevailed in the world's sea trade for the last few years has had a prejudicial effect on French shipping in the course of 1923, unmistakable signs of an improvement have been observed, more especially during the last month of the year, and although the future cannot be predicted with any certainty it is generally hoped that the past year marks the end of the crisis.

Several reasons are responsible for the improvement in the general outlook for French shipping. It has first been observed in the course of recent months that the freight situation has improved and that more favorable tendencies towards a revival of the world sea trade have developed. Such is the case with the Havre-New York service. According to recent reports the demand for tonnage from the United States to France has been much more important in September and October last than the average for the preceding months.

Another reason, responsible to a considerable extent for a general improvement in the situation lies in the efforts which have been made in this country in the course of the last year with a view to bringing about a better organization of sea transports under French flag. It is no exaggeration to state that 1923 has marked the beginning of a new era as far as the French shipping policy is concerned. Striking examples of the campaign which has been started with the full support of the Government may be found in the reports of steamship companies, the resolutions passed by Chambers of Commerce and various trade bodies and the statements made by prominent persons in the shipping industry.

The work of the Commission Generale Extra-Parlementaire de la Marine Marchande (Extra-Parliamentary Committee for Mercantile Marine) in the course of 1923 constitutes the most impressive proof of the endeavors which are now being made by the French towards the revival of their mercantile marine. The directors of the largest French steamship companies have made authoritative and comprehensive statements on the actual condition of the sea trade and their suggestions will doubtless lead to material improvements.

The most interesting conclusion which has been arrived at by these prominent shipowners is that French vessels can not find in French ports sufficient freight to enable them to sail on overseas voyages. The French exports are insufficient, and they further consist chiefly of articles "de luxe" of but small volume. French shipowners are thus more determined than ever to obtain in foreign ports the freight necessary for the profitable running of their vessels. In this connection an interesting suggestion was made by Mr. Breton, managing director of the Chargeurs Reunis, who

Generated on 2024-09-12 12:03 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

stated that the Germans should be forced through diplomatic pressure to supply French vessels in German ports with a minimum amount of freight.

OUTLOOK FOR LARGE STEAMSHIP COMPANIES IMPROVING

Although no official report has so far been issued in connection with the results of the management of the big French steamship companies for 1923, it is learned on good authority that for some of these firms the results will be somewhat better than for 1922.

Such is the case with the Compagnie Generale Transatlantique (French Line), the biggest French company. It was stated some weeks ago that the receipts for the first 6 months of 1923 had been 15 percent higher than those for the corresponding period of 1922. While the scarcity of freight is a serious problem with that concern, the receipts from passenger services, and especially that of the Havre-New York service, show material profits for the French Line.

The commercial success of the *Paris,* the largest French vessel afloat, has been even greater in 1923 than in 1922. On several occasions the total amount of the receipts for the round voyage of this liner has reached the enormous sum of 7 or 8 million francs. The other big liner of the French Line, the *France,* is now being converted to oil burning at the yards of the Chantiers et Ateliers de Saint-Nazaire-Penhoet, which are at the same time carrying out a general overhaul of the boilers of the vessel. The passenger accommodations are to be thoroughly reconditioned and renewed and a wide staircase is to be installed as on the *Paris.* After her conversion to oil burning the *France* will be capable of maintaining a service speed of 23 knots. Her first sailing as an oil burner which is due to take place from Havre on May 10, 1924, will be an event of outstanding importance for the French Line.

Owing to the continued strike of the boiler makers in British yards the delivery of the new cabin passenger vessel *De Grasse* built by Messrs. Cammell Laird, Birkenhead, to the account of the French Line for the Havre-New York line will be considerably delayed. The ship was originally intended to sail on her maiden trip in May, 1924, but in view of the recent developments it is learned that she is not likely to be delivered before the early months of 1925.

Another development of considerable interest in connection with French shipping is the order which is to be placed by the French Line for a big liner to be placed in service in 1927 on the Havre-New York line. According to recent reports this liner will be 790 feet long, 92 feet beam and 61 feet 3 inches deep, with a gross tonnage of 40,000 tons. The propelling machinery will probably consist of four Parsons turbines developing 48,000 horsepower, giving a service speed of 23 knots. The order for the construction of this liner will be placed by the French Line—very likely with the Chantiers et Ateliers de Saint-Nazaire Penhoet—as soon as Parliament has approved of the bill providing for the financial arrangements relative to the participation of the Government. Another development of interest in connection with the French Line is the recent resumption of regular passenger and cargo services between France and Canada.

The prospects of the other big French steamship company, Les Chargeurs Reunis, do not so far appear to be as satisfactory as those of the French Line, as, while it is generally expected that the latter firm will be in a position to pay a dividend for the year 1923, this is much more doubted as regards the former. The chief cause of the depression from which the Chargeurs Reunis has suffered for the last two years is the nearly total lack of freight in the frozen meat trade from South America. Following optimistic hopes which had been entertained both in shipping and government spheres at the end of the war, the Chargeurs Reunis decided on the construction of an important fleet specially adapted to the conveyance of frozen and chilled meat, but it was soon discovered that the imports of frozen meat would be far less important than during the war. So far as the balance of their business is concerned the Chargeurs Reunis are carrying on their services from Antwerp, Havre, La Rochelle-Pallice to South America under fairly satisfactory conditions.

The Messageries Maritimes has shown a fair activity in the course of 1923. This company decided some weeks ago to establish regular services with the ports of the Baltic sea and to provide for calls at Petrograd, this being generally considered in this country as a sign of the resumption of trade relations between France and Russia and as a forecast of the signing of a trade agreement between the two countries.

It is also rumored that the Messageries Maritimes will establish shortly regular services with several ports of British India.

A point of outstanding interest in connection with the activities of the Messageries Maritimes is the considerable building program of that company. While most of the French shipowners ceased months ago to place any further orders for new vessels, in view of the present difficulties in shipping affairs, the Messageries Maritimes has 6 passenger vessels under construction in French yards and two in German yards in accordance with the provisions of the Treaty of Versailles under the heading of reparations. The fact that the Services Contractuels des Messageries Maritimes are operated with the financial support of the Government is responsible to a wide extent for the large building program of that company, as few private shipowners could afford at present such expenditures.

The following are the new passenger vessels of the Messageries Maritimes which will be placed in service in 1924 or 1925: The *Aramis* (20,320 tons displacement), now being completed at the Bordeaux yards of the Chantiers et Ateliers de la Gironde; the *D'Artagnan,* sister ship of the *Aramis,* under construction at the same yards; two sister ships of these vessels under construction in German yards, all four for the Marseilles-China line; the *Leconte de Lisle* (15,100 tons displacement) under completion at the La Ciotat (near Marseilles) yards of the Societe Provencale de Constructions Navales and the *Explorateur-Grandidier,* a sister ship to be built by the Chantiers et Ateliers de Saint-Nazaire-Penhoet, for the Madagascar line, and the *Champollion* and the *Mariette-Bey,* two passenger vessels of the *Sphinx* type under construction at the yards of the Societe Provencale de Constructions Navales, which are to be run on the Mediterranean lines. In addition to these 6 ships the Messageries Maritimes has just placed with the Chantiers de France an order for the construction of the hull of a passenger vessel of the *Sphinx* type, the propelling machinery of which will consist of two internal combustion engines developing about 4,000 horsepower.

It appears from the above that the Messageries Maritimes, more than the other French steamship companies, are in a satisfactory position, as far as the condition of their fleet is concerned, to await the revival in shipping affairs. Similar remarks can be made in connection with another company, the Chargeurs Français, which, following the purchase of the whole of the fleet of the bankrupt company Les Affreteurs Reunis, has become the fourth among French steamship companies for the tonnage of vessels owned. A revival has already been observed as regards the coasting trade between French and Algerian ports, in which the fleet of the Chargeurs Français has been specializing for years.

SHIPBUILDING ACTIVITIES

The French merchant fleet in June, 1914, totalled 1,918,000 tons. In June, 1923, the figures worked out to 3,265,000 tons. It is expected that within a few months the French fleet will aggregate 4,000,000 tons. While many new vessels

Generated on 2024-09-12 12:16 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

had been delivered to French shipowners in the course of 1921 and 1922, following the numerous orders intended to replace the war losses, few new vessels have been completed in French shipyards in 1923. The liquidation of the State merchant fleet by adding several ships to the fleets of most of the French shipowners is responsible to a great extent for the dearth of orders placed in 1922 and 1923 with French shipyards. Furthermore, several ex-German vessels have been transferred to French owners.

On the other hand, the vessels ordered from British shipyards in 1919, at a time when French shipyards, which had devoted their full activity to the making of shells and ammunitions during the war, were not in a position to undertake their construction, have been delivered in 1923. The *Cuba*, a passenger vessel of 8,850 tons gross, built by Messrs. Swan Hunter and Wigham Richardson, Newcastle-on-Tyne, to the account of the French Line was placed into service in May last on the Saint-Nazaire-Habana-Vera Cruz line, and is the finest of the vessels acquired by French shipowners in 1923. The decorative work of the passenger accommodations of this vessel, which was entirely executed by French firms, is a fine example of French modern art. The French Line also took delivery in 1923 of a new cargo vessel, the *Alaska*, built by The Sunderland Shipbuilding Company, which is one of the best equipped and speedy cargo vessels of the French merchant fleet.

No Further Orders to Be Placed With Foreign Yards

In view of the prevailing dearth of orders in most French shipyards, and owing to the fact that these shipyards have now fully recovered and even improved their capacity for construction, it may be expected that no further orders are likely to be placed with foreign shipbuilders. On the contrary, the abnormal rate of exchange, while opposing the placing of French orders with foreign firms, has been responsible for the placing of several orders for new foreign ships with French yards, and it is expected that several further orders will be placed in 1924 by foreign owners with some prominent French shipyards.

The following are the French shipyards which have at present the most important building programs:

The Chantiers et Ateliers de la Gironde are completing the passenger vessel *Aramis* and building the sister ship *D'Artagnan* above referred to. At their Harfleur yards they are building 4 cargo vessels to the account of the Government, 2 lighters to the account of a British firm and one tanker to the account of the Anglo-Saxon Petroleum Company. The same builders delivered some weeks ago to the Compagnie Auxiliaire de Navigation the tanker *Melpomene*, of 10,250 tons deadweight, which is one of the finest tankers of the French merchant fleet.

The Chantiers de Saint-Nazaire-Penhoet have also important work on hand; they are about to start the construction of the passenger vessel *Explorateur Grandidier*, above referred to. They are also building one cargo vessel to the account of a French firm and one cable-laying ship to the order of the Western Union Telegraph Company, which is to be fitted with the Peabody oil-burning system.

The Societe Provencale de Constructions Navales has under construction the passenger vessels *Champollion* and *Mariette-Bey*, and are completing the *Leconte de Lisle*.

The Chantiers de la Loire are completing three vessels (*Chantilly, Compiegne, Fontainebleau*) to the account of the Messageries Maritimes, and two vessels, the *Jouffroy D'Abbans* and the *Camranh*, to the account of the Chargeurs Reunis; the latter, which was launched on November 10, is the first French motorship.

The Forges et Chantiers de la Mediterranee are completing the last vessel of a series of 4 passenger steamers of the *Mustapha II* type to the order of the Department of Mercantile Marine: this is the *Gouverneur-General-Laferriere*, sister ship of the *Gouverneur-General-Tirman*, *Gouverneur-General-Cambon* and *Gouveneur-General-Lepine*. It is noteworthy that the 4 other passenger vessels built to the order of the Government (*Gouverneur-General-Chanzy*, *Gouverneur-General-Grevy*, *Gouverneur-General-Jonnart* and *Gouverneur-General-de-Gueydon*) have been completed in 1923 and chartered to the French Line to be run on the Marseilles-Algeria lines. The French Government thus owns 8 new passenger vessels, while the cargo vessels of the former State merchant fleet have been almost all disposed of.

Progress of the Motorship

While it may be stated that 1923 has marked the definite success of oil burning in France as compared to coal burning, there is some speculation as to whether 1924 will not bring about the increased use of the marine oil engine which has not so far been as widely adopted in this country as in other countries. Until recently there was only one motorship under construction in France; the *Camranh*, above referred to, a cargo vessel of 11,700 tons deadweight equipped with two Sulzer two-cycle engines developing 1,700 horsepower each. The Messageries Maritimes have now placed an order for a motorship, but no decision has so far been arrived at in respect of the type of engines to be adopted. Following these two first orders, it would not be surprising if some other big steamship companies should decide to make a trial with motorships.

Naval Program and Private Shipyards

It is noteworthy that by placing important orders for the hull or the machinery of new warships with private shipyards the Department of Navy has been of real service to the national shipbuilding industry. In August, 1923, there was launched the new cruiser *Duguay-Trouin*, of 8,000 tons; this is the *first cruiser launched in this country since the war.* The propelling machinery consisting of 4 Parsons turbines developing 110,000 horsepower is to be built by the Chantiers de la Loire.

French Port Improvements

A striking demonstration of the efforts which are being made by the French towards an improvement of the shipping trade may be found in the considerable program of port extension which is about to be carried out. New mooring and landing facilities are to be provided for at La Rochelle-Pallice and at Le Verdon (outer port of Bordeaux). Important extension works are being executed at Havre, Brest, Cherbourg and Casablanca.

Numerous Innovations and Reforms Planned

Before closing the summary of the prospects of French shipping, it is interesting to point out the numerous innovations or improvements in respect of regulations relative to the merchant marine which have been brought about in the course of 1923 or are expected to be introduced in 1924. Among the latter the most important are: The proposed organization of a Credit Maritime, which is intended to provide for the lending of money to shipowners, the introduction of a Code for Mercantile Marine, the organization of a new regime for the petroleum trade and the organization of oil supplies, etc.

It seems as if France is about to recover from a long lethargy. Never in the past have the French shown so keen an activity towards the realization of economical schemes, and the endeavor to build up the merchant marine has never been stronger. Unfortunately, the prevailing difficulties arising from the international disturbances are a serious hindrance to the efforts of French traders.

Generated on 2024-09-12 12:22 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

How the Shipping Board Is Reducing Operating Costs

Reorganization of Departments Cuts Down Overhead—Methods of Reducing Fuel, Subsistence, Repair and Management Expenditures

WHEN the present Shipping Board came into office in 1921, it inherited a state of chaos. The reason for this can be understood when it is realized that an organization of a size which under normal conditions would be the result of many years' steady growth was under the stress and need of war created, figuratively speaking, overnight and subsequently was allowed to struggle along for a period without the guidance of a fully organized board of commissioners. The first aim of the new board was, therefore, one of entire reorganization of all departments, weeding out of deadwood, reduction of overhead and the placing of the Shipping Board on a firm commercial basis, this reorganization in its broader aspects finally being accomplished in the spring of 1922.

To facilitate the handling of its large fleet of vessels on a commercial basis, the board revived the Emergency Fleet Corporation, originally organized for the performance of the war time construction program, and placed a vice-president in charge of each major activity within the corporation, such as sales, traffic and operation. In May, 1922, the reorganization with reference to ship operation was interrupted by the illness and later death of Mr. A. J. Frey, vice-president in charge of operating matters, resulting in the recall of Mr. J. E. Sheedy from Europe to "carry on" and his appointment as vice-president on the death of Mr. Frey.

Problems the Board Had to Solve

At this time among the major problems still awaiting solution were the following:

1. The necessity of consolidation of functions and organization in the district or field offices.
2. Reduction of fuel consumption.
3. Reduction of crew subsistence costs.
4. Reduction of expenditures for consumable stores in the deck, engine and stewards' departments aboard ship.
5. The creation of an organization to care for the laid-up fleet in an efficient and economical manner.
6. Consolidation of sub-agents of the operating companies in foreign ports, especially Europe.
7. The placing of responsibility for repairs on managing agents.

Taking in sequence the problems noted above, it is the aim of this article to outline briefly the progress to date.

Consolidations in the District and Field Offices

Study of the various district organizations showed a needless duplication of effort both within and between districts. Within the districts separate departments were maintained for the handling of operations matters and maintenance and repair work. As it is often difficult to draw a sharp line between these activities, the result was frequent crossing of wires and considerable inter-departmental friction. To eliminate this these two departments were combined in all districts with the exception of New York where the consolidation was postponed until its effects elsewhere could be observed, as the volume of work to be handled at that port might cause the consolidated department to be somewhat unwieldy from size alone. Incidentally, the consolidation resulted in a net payroll reduction of $176,000 per annum with an increase in efficiency of operation worth far more to the corporation.

Between districts a still more serious condition prevailed, as the same vessels were putting into several ports of call at which they were being handled without coordination, resulting in a vast amount of duplication of effort and unnecessary expense. To eliminate this a home port was named for each vessel and instructions issued that, except for such work as was necessary to enable the ship to proceed, all repairs should be made and supplies purchased at the home port. This resulted in the major repairs and storing being effected at the port where the managing agent to whom the vessel was allocated could be expected to maintain an adequate port staff instead of at points where the ship's affairs would be taken care of by sub-agents who could not be expected to take the same degree of interest. This course could not but result in large direct savings, as well as vessels being maintained in better operating condition.

Reduction of Fuel Consumption

A comparison of the fuel bills of individual Shipping Board vessels showed a woeful lack of uniformity of fuel consumption among ships of identical construction and operating under similar conditions, with in many instances the use of excessive quantities. With a view to remedying this condition, in August, 1922, a Fuel Conservation Section was created and a committee appointed composed of technical men from both within and without the organization for the purpose of studying the performance of the various types of vessels and recommending such changes in design and operation as would increase the fuel efficiency. As one of the results of this study a standard performance chart has been drawn up showing what each type of vessel, when operated under an arbitrary standard of efficiency (not maximum) should do.

It was at once apparent that to attain worth while results a means must be found of affording the engineer personnel instruction in the most modern and best fueling methods. Accordingly, negotiations with the United States Navy resulted in permission being granted to send Shipping Board engineers to the Navy Fuel Oil Testing Plant, Navy Yard, Philadelphia, and it was arranged that engineers on vessels whose home ports were New York, Philadelphia and Baltimore, were given an intensive course of five days at this plant. Later this arrangement was extended to include Gulf ports.

Some idea of the increase in efficiency resulting from this instruction and from the changes recommended by the committee can be obtained from the following:

Vessel	*Relative Percentage of Standard Efficiency*
West Mohamet	75.6 to 91
Innoko	69.4 to 97.3
Westerner	65.9 to 94.8
President Monroe	54.6 to 100.5
Eastern Leader	58.4 to 90.4
Wekika	68.6 to 100.5
Kerhonkson	74.4 to 98.4
Ossa	65 to 99.6
Hog Island	61.3 to 90.8
Dochet	69.4 to 91.7
Sabatawan	62 to 96.3
Abron	70.4 to 91.6
Otho	76.4 to 96.7
Independence Hall	75.4 to 96.9
West Eldara	70.6 to 97.7
Sangamon	76.8 to 93.6
West Humhaw	84.7 to 92.3

The engineer personnel realize that reports of these comparative results are being made and this realization stimulates the spirit of competition with very favorable effect on the results obtained, results reflected not only in fuel

Generated on 2024-09-12 12:20 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

economy but in the physical condition of the vessel as well. As a further incentive to efficiency, it was arranged to place engineers who demonstrated marked ability on an honor roll, which roll, to date, shows the names of 43 engineers.

The actual monetary saving accomplished by this work is well illustrated by the following tabulation, which covers the results of actual operation during the first nine months of 1923 of 15 passenger and 10 freight vessels:

535-Foot Passenger Vessels Operating Out of Port of New York

Vessels	*Tons of Fuel Saved*	*Percent of Fuel Saved*
6	4872	5.53

502-Foot Passenger Vessels Operating Out of Port of New York

Vessels	*Tons of Fuel Saved*	*Percent of Fuel Saved*
5	3522	6.165

Ex-German Ships Operating Out of Port of New York

Vessels	*Tons of Fuel Saved*	*Percent of Fuel Saved*
4	5341	6.49

Cargo Ships Operating Out of Port of New York

Vessels	*Tons of Fuel Saved*	*Percent of Fuel Saved*
8 (oil burners)	2470	11.59
2 (coal burners)	408	6.46

At prevailing fuel prices the actual savings effected on these twenty-five vessels amounts to more than $200,000 per annum; and at a most conservative estimate the aggregate saving effected on the entire fleet is not less than 5 percent or a saving in the fuel bill of the corporation of more than $1,500,000 per annum.

Reduction of Crew Subsistence Costs

Investigation of feeding costs on Shipping Board freighters readily revealed these to be unreasonable, as in 1921 these costs ranged from $1.00 to $1.25 or more per day per person. At the same time vessels of private operators (even those handling some Shipping Board tonnage) were being provisioned at a maximum of approximately 75 cents per day per man. As an effort toward remedying this situation on January 1, 1922, managing agents were notified that thereafter they would be held to a maximum of 80 cents per man per day.

A study of this plan in operation soon proved its weakness as the general tendency was to endeavor to keep just within the maximum, there being no real incentive to go far below this figure, notwithstanding investigation developed that careful purchases and use of food supplies would make possible a considerable reduction from the 80 cent figure. To supply the needed incentive, and at the same time bring about a reduction in cost to the corporation, on July 1, 1922, a fixed allowance of 65 cents per man per day was made effective. The fact that the difference between the allowance and actual cost was for the account of the managing agent had immediate results. Not only did the corporation reduce its expenditure, but the managing agents were rendered more efficient as they were compelled to strengthen the personnel of their port forces and more carefully check performance in their purchasing and stewards' departments.

The saving to the corporation as result of the 65 cent rate has amounted to approximately $750,000 per annum.

Reduction of Expenditures for Consumable Stores

In line with the above policy of placing further responsibilities on the managing agents, the subject of establishing a fixed allowance for consumable stores was next taken up.

A committee was appointed to make an exhaustive study of vessels' requirements. For use in this study the auditing department compiled a report covering 63 voyages of various types of vessels operated by 23 managing agents, in addition to which were obtained statistics from several private operators who were handling fleets of their own.

These reports brought to light the fact that some managing agents were guilty of wholesale extravagances in operating Shipping Board vessels.

After several conferences with the standing committee of the managing agents, the following fixed allowances were agreed upon for vessels within the tonnage ranges as shown:

Class 1—up	to 5000 T.....	$22.00	per diem
Class 2—5001	to 6500.....	23.00	per diem
6501	to 8000.....	24.00	per diem
8001	to 9500.....	26.00	per diem
9501	to 11000.....	28.00	per diem
Over 11000.....		30.00	per diem

The first six months' operation under this plan, taking as the basis past performances, showed a saving to the corporation of approximately $1,400,000 per annum.

At the time the subsistence and stores allowances were placed in effect, it was decided to try these out over a period of one year. If then it was found that the standard of subsistence had not been impaired, the subject of a further reduction in the allowance would be brought up, while in the case of consumable stores, if it was found that the allowance was more than sufficient for the maintenance of vessels in proper operating condition, a corresponding reduction in this allowance would be considered.

Creation of An Organization to Care for the Laid-Up Fleet

In the spring of 1922, the proper care of laid-up vessels had become a problem of tremendous importance. With the decline in world shipping, more and still more vessels had been removed from service because of lack of employment, while at that time the laid-up fleet comprised approximately 1,000 ships. These were scattered from Portland, Maine, to Orange, Texas, and from San Francisco to Seattle. In many ports heavy wharfage was being paid, while no standard method of procedure in the upkeep or the handling of the vessels had been laid down, with the result that the ships were not being maintained with a uniform degree of efficiency. A survey of the expenses and inspection of the fleet itself offered convincing proof of the urgent necessity of concentrating the laid-up fleet at points where maximum supervision could be secured with a minimum of expense; and as a means of securing this, the laid-up fleet committee was appointed on October 1, 1922.

Under this committee, the laid-up vessels were concentrated at a few points, either at anchor or free wharves. This not only greatly decreased expenses, but their concentration into fewer and larger units rendered it possible to perform a larger amount of maintenance work, as the personnel could be given closer supervision and more efficiently handled.

In May, 1922, the rate of expenditures for the laid-up fleet was $4,200,000 per annum, while a year later, as result of these economies with practically the same number of vessels laid up, this figure had been reduced to $2,300,000, or a difference of $1,900,000 per annum.

Not unnaturally, in carrying out this program, considerable opposition from Chambers of Commerce and others interested was experienced in nearly every case where it was desired to transfer fleets from ports where they were subject to wharfage charges.

Consolidation of Sub-Agents of the Operating Companies in Foreign Ports, Especially Europe

This was a crying need. Shipping Board vessels were being handled by altogether too many sub-agents, and were, therefore, not receiving maximum dispatch through the inability of the sub-agents to maintain proper port staffs; this because of the fact that many of them were handling but one or two vessels per month. As an excellent illustration of this at Hamburg, Bremen, Amsterdam, Rotterdam and Antwerp, there were respectively 8, 8, 7, 8 and 13 sub-agents respectively, the combined business as represented by the various managing agents operating to these ports being in no instance sufficient to support more than two sub-agents.

Generated on 2024-09-12 11:59 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

With a view to correcting this, and increasing the efficiency, particularly as regards dispatch and to prevent competition between vessels of same owner, representatives of the various managing agents were called together and explanation given them as to why a consolidation was deemed desirable, particularly where there was no conflict of interest, such as a consolidation between a South Atlantic or Gulf operator with a North Atlantic operator. The European director was brought to the United States to explain the situation and the majority of the managing agents were in accord with the proposed policy.

Some few consolidations resulted, such as in the smaller ports of the United Kingdom, including Cardiff, Avonmouth, Bristol, Hull, Newcastle and Leith, also in the major ports of London and Liverpool, while several managing agents established their own agencies at some continental ports. However, because of the present uncertainty as to the policy of the board, no further action can be taken at this time.

Responsibility for Repairs Placed on Managing Agents

In the past, the only feature of vessel operation not entirely handled by the managing agents was that of repairs. As the ultimate object of the board was to have the managing agents eventually take over and operate the ships as private owners, it was deemed highly desirable that the question of repairs be placed in the hands of certain managing agents, in order that a general policy could be fixed after a study of results obtained.

After obtaining data on the port staffs of various operators, an agent handling passenger vessels out of New York and one operating on the West Coast, as well as five operators of freight tonnage, were given an opportunity to demonstrate their efficiency in connection with handling of repairs.

In general, the results of this action have been satisfactory, but no steps have been possible toward the extension of this method of handling repairs to other operators, both because of the probable change of policy within the board, and the disinclination of managing agents to accept additional responsibilities at a time when they have been given reason to believe the entire managing agency system is to be shortly overturned.

The above outline deals with the main operating features which it has been the endeavor to cover during the past year and a half; and, with respect to these and other matters, it has been difficult, and in some instances impossible, to reach the state of efficiency desired, as the unsettled condition with reference to future policy has militated against the inauguration of radical changes. First, this condition was caused by the uncertainty as to the passage of the Ship Subsidy Bill. Later, when the Ship Subsidy Bill had met defeat, it was thought that the plan of operation by subsidiary companies would probably be adopted, and now since that plan has been ruled against by the Attorney General, it is necessary that any sweeping changes await the formulation and adoption of an acceptable alternative plan. Unquestionably, when a permanent policy covering the operation of the Government's vast fleet shall have been finally adopted, the element of permanency alone will permit of further and greater economies with a general increase in efficiency, thus lessening the drain on the public treasury until the long desired time is reached when the fleet, built to meet a war emergency, eventually passes to the ownership of private American citizens or corporations.

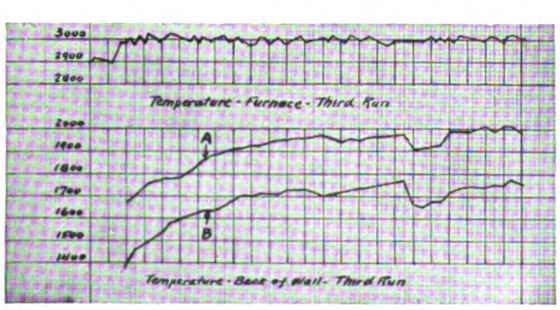
Tests Made on Monolithic Furnace Linings Show Long Life of Material

WITH the development of monolithic or plastic unbaked furnace linings has come the possibility of increasing the life of linings as evidenced by a series of tests on marine boiler furnaces recently completed.

Monolithic lining comes in a soft, unbaked, readily workable form, which can be installed without the services of highly skilled masons. After the plastic substance has been pounded to conform with the lines of the furnace, it is baked slowly. This baking process vitrifies the lining and forms a solid one piece lining which will resist temperatures as great as 3,100 degrees F.

It is stated that the life of the material is two to four times that of brick furnace lining. Bearing out this fact, in a series of tests at 100 percent rating on five oil-burning furnaces, four of which were set in firebrick and the fifth in monolithic lining, by the time that the firebrick had cracked and disintegrated, the monolithic lining did not show any evidence of deterioration.

In another test shown in the chart herewith, the back wall of a furnace was divided into two sections, one lined with one piece refractory material and the other with a good grade of firebrick. The heat loss through the wall was then determined. The temperature of the furnace registered from 2,895 to 3,010 degrees F. Behind the firebrick wall the heat loss ranged from 1,660 to 2,010 degrees F., while behind the plastic wall the gages recorded a temperature ranging from 1,365 to 1,770 degrees F., indicating that the heat loss was lower through the latter.



Test Results

Haskelite Bulkheads Show Great Stiffness with Small Weight

IN comparative tests recently made between bulkheads constructed of Haskelite and others of tongue and groove form, the Haskelite bulkhead although having only half the weight of the latter type proved to be stronger and to have nearly twice the stiffness.

The tongue and groove bulkhead failed under a load that did not effect the Haskelite in any way. The tongue and groove bulkhead was made up of 2 layers of 13/16-inch by 6-inch yellow pine sheathing and 220 No. 6 cement coated nails were used in bonding each bulkhead. The Haskelite bulkheads were 7/8 inch thick and were nailed to their frames with the same number of nails as were used in the built up sections.

NEW YORK CENTRAL TO BUILD TUG.—Plans and specifications for the construction of a new steel tug for the New York Central Railroad, have been completed by J. W. Millard & Brother, 17 State street, New York City, and it is understood will be issued in the near future from the office of Walter B. Pollack, marine manager of the New York Central. The new boat will have a length of about 91 feet beam 23 feet, driven by high pressure reciprocating engines.

Generated on 2024-09-12 11:59 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

How the Industrial Development of the Philippines Will Aid the American Merchant Marine

Philippines Will Need 2,000,000 Tons of American Ships—Manila Destined to Become America's Entrepôt for the Far East

By Vicente Villamin

OF the aggregate net tonnage of 1,300,000 engaged in the foreign trade of the Philippines approximately 500,000 is American. Ton for ton American vessels carry the largest portion of the cargo moving between that country and the United States. In service and efficiency American shipping is unsurpassed. Americans, Filipinos and foreigners are cooperating to give more business to American vessels. It is only fair and natural that this should be done. And it should be the aim of all to extend more patronage to the vessels flying the American flag to the end that American business in the Far East may the better cope with the ever-growing competition in international trade.

It is observed that American steamship companies are bending every effort to leave nothing unturned in the way of equaling, if not surpassing, the service rendered by the best equipped and the most efficiently managed foreign line. Foremost in its activities in this direction is the Pacific Mail Steamship Company whose president, Gale H. Carter, ably assisted by General Manager Graham, interests himself not only in giving adequate and efficient ocean service but also in the broad question of the economic development of the Philippines. A foresighted shipping man can do no less. If the other shipping executives would render their assistance in converting the Philippines into a bigger producer of raw materials they would thus be intrenching the American merchant marine in the Pacific in a formidable fashion.

The surest way to promote the shipping business lies in the fostering of trade between countries. The bulk of the commodities moving in international trade today comes from the tropics in their raw or semi-manufactured state. And the bigger portion of these commodities is supplied by the countries of the Far East. During the last decade America's purchases from that region were $2,200,000,000 in excess of her total sales thereto. The Philippines contributed relatively little to this enormous sum.

The overwhelming part of the materials in that trade was transported in foreign bottoms. For the British East Indies products were carried abroad by British ships, the East Indies by Dutch ships and the Japanese by their own ships. It stands to reason that, if the foreign trade of the Philippines were larger, the business securable by American ships would be proportionately greater. The exploitation therefore of the natural resources of that country by American enterprise and capital is of direct concern to American shipping.

The foreign trade of the Philippines is only about $200,000,000 a year. Considering its extensive area, the fertility of the soil, the diversity of the products, the size of the population and its advantageous geographical location, that country should have a much larger foreign commerce. If the estimate is based on the yearly per capita foreign trade of Porto Rico, the Philippines will have a commerce of $800,000,000; if on the Hawaiian standard, it will be around $1,000,000,000; and if on the Cuban, it will be the enormous total of $2,000,000,000 annually.

The Philippines have infinitely more diversified products than any one of these countries. The area is three times larger than that of Cuba, but the Cuban trade is over three times that of the Philippines. Hawaii is only about one-nineteenth of the Philippines in size, yet their respective foreign trade is on about the same level in amount. The Philippines is thirty-nine times larger than Porto Rico, yet the foreign commerce of the Philippines is not three times as much.

In potentiality the Philippines surpass any country in the world. But the Philippines must cease to be satisfied with mere recitals of potentialities and opportunities. The storied advantages should be made real, tangible and visible. The Philippines cannot stand up before the world and "point with pride" to a great and progressive country as long as their

American Capital in the Philippines

THE investment of American capital in the Philippines will gain for America the triple objects of securing reasonable returns on the outlay, making the Philippines a more important consumer of American goods and converting that country into the commercial distributing center of the Far East to the great profit of American trade and of the American merchant marine.

To the Philippines American capital will mean more employment and better wages, increased wealth, more wants and higher standards of living; it will give a strong impetus to Filipino undertakings, and stabilize the country's domestic and foreign economic affairs to the great gain of the Filipinos.

The economic development of the Philippines with the aid of American capital, American equipment and American enterprise is unquestionably to the mutual advantage of America and the Philippines.

The Philippines are possessed of immense undeveloped natural resources. The Filipinos should not content themselves with mere recitals of possibilities and potentialities. Actual tangible results must be produced. Otherwise the saddest disillusionment may be in store. Now is the time for the Philippines to come forward and give proof that she has resources as well as resourcefulness to validate a claim to a strong position among the countries in the Far East.—*Vicente Villamin.*

Generated on 2024-09-12 12:27 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

natural wealth is permitted to continue in its sleep of centuries and the foreign trade less than $1,000,000,000 a year. This amount of trade should be easy of realization, if adequate capital were available and enterprise displayed greater vigor and activity. When thus developed the Philippines will require no less than 2,000,000 tons of American ships.

Industries and Shipping Go Hand in Hand

America imports about $200,000,000 worth of crude rubber from the Far East. The consumption of this commodity is increasing by leaps and bounds. America in 1904 used only 26,000 tons and in 1910 over 42,000 tons. In 1915 it grew to 112,000 tons and in 1920 to 249,000 tons. The estimated consumption for 1923 is 325,000 tons. When the new use of rubber for pavement on bridges and roads is realized the world rubber consumption will multiply many times. It is safe to state that only an infinitesimal portion of the rubber importations from the Far East came in American bottoms. The idea is to open up the island of Mindanao on the southern part of the Philippine archipelago and grow the rubber needed by America. If that is realized—and it will be realized if all Americans and Filipinos work hard enough—American ships will have an enormous business in prospect.

The Philippines should and can produce more sugar than she is doing now. When the production is only about the same as the output of a tiny island known as Mauritius in the Indian Ocean, an island of 720 square miles as compared with the 115,000 square miles of the Philippines, the people concerned may well pause and contemplate ruefully what wealth might have been theirs, if the sugar industry had been developed more fully. The Philippines export about 150,000 tons of sugar a year. The quantity would be more in accord with the place of the Philippines as a sugar-producing country if it were 1,000,000 tons. This is far from being an exaggerated amount of output for that country when it is considered that Cuba produces approximately 4,000,000 tons. Here again American shipping is offered a possible opportunity, for it will be the American ships that will carry the products of the Philippines.

These two commodities are by no means the open-sesame to larger business. There is the lumbering industry which is only on the threshold of a great future. The cocoanut oil and copra trades of the world represent about 1,500,000 tons of ocean cargo. The Philippines are in a position to secure the bigger portion of this trade. Again more capital is needed to make this possible. The world cordage industry is absolutely dependent on hemp which is grown only in the Philippines. The diversification of the uses of this fiber will tend to increase production appreciably. It is a matter of statistics that the proportion of hemp carried in American bottoms is growing bigger and bigger. The cigar exports of the Philippines to America which represent 70 percent of the total output of the Manila factories are carried largely by American vessels. Improved service, cooperative efforts on the part of Filipinos and Americans in business and in the Government employ and a general realization that American shipping is entitled to first consideration brought about this happy condition of affairs. There are other industries in the islands that are future important supporters of the American merchant marine.

Demand for American Goods Will Increase in Proportion

Of course the trade will be reciprocal. The increased wealth of the Philippines will make her a larger buyer. And America will get the bulk of her purchases. There is free trade between the two countries. Over 62 percent of the foreign trade of the Philippines is done with the United States. The iron, steel and machinery imports already amount to about $15,000,000 a year. Imports of steel products for shipbuilding are increasing. Soon there will be ships fabricated in American yards destined for the inter-island trade in the islands. And when the *entrepôt* commerce of America is developed with Manila as the center there will be necessity for ships of special types to engage in the feeder trade in the Far East.

The inter-island tonnage is not negligible. It will be recalled that the Philippine archipelago is composed of 7,000 islands and therefore water transportation is the most important means of communication. American ships built in America and equipped with American machinery are giving most satisfactory service and the shipping men are beginning to appreciate their superiority.

The ships on the ocean-carrying trade, including those allocated by the Shipping Board, have established a reputation for seaworthiness and speed. The speed record on the Pacific for passenger steamers has been held by a Shipping Board steamer of the 535-foot type; so is the record for the freighters. The American steamer *Stockton* often delivers her cargo from Manila to San Francisco days ahead of the arrival of the mail which leaves Manila at the same time. In view of this the *Stockton* now carries the papers covering shipments.

With the splendid showing of American vessels, importation of American manufactures into the Philippines will be facilitated and its volume will increase. That would mean another big opening for the American merchant marine.

Manila as American Entrepôt in the Far East

Hong Kong is the leading port of the Orient. Her reexport trade which reaches $1,000,000,000 in prosperous years is responsible for this. Singapore is another port with a tremendous trade. These two ports are the commercial distributing centers of the British Asiatic commerce. The Dutch commercial activities in the Orient are operated from Batavia and Soerabaja. The Japanese have Kobe for their base and the French have Saigon in Indo-China. In the trade of Asia where delivery of merchandise and spot cash payment are the two distinguishing characteristics the seller who maintains his base of supply nearest to the markets wins.

The need of an American commercial base at Manila is apparent. When the Philippines become a great producer of raw materials and an important buyer of manufactured goods it will not be a far-fetched prediction that Oriental business will gravitate to Manila and the economic affairs of the tropical Far East discussed and directed from it. It must not be forgotten that America is the largest consumer of tropical raw materials, and it is an axiom in salesmanship that the best buyer is the magnet which draws to him the best customers. Manila will be the meeting-place and the emporium for American buyers and sellers on the one hand and for the Oriental merchants on the other. Manila harbor will be dotted with ships from all ports of the world.

An idea of how extensive a field America has in Asia may be gleaned from the fact that to the 400,000,000 of China America sold only $0.23 per capita a year average during the last ten years; $0.15 to the 350,000,000 of the British East Indies who sold her $1.00 per capita; $0.90 to the 50,000,000 of the Dutch East Indies and $4.15 to the 70,000,000 people of Japan.

Manila's Strategic Trade Position

If a circle is drawn with Manila as the center with a radius of 1,700 miles, it will include 125,000,000 people; and with a radius of 3,500, it will comprise over half of the population of the world. Manila is 631 miles from Hong Kong, 675 miles from Amoy and 1,162 miles from Shanghai. This will give an idea of the proximity of Manila to the enormous country of the Chinese. It is 1,370 miles from Singapore, 1,430 miles from Bangkok, Siam, 907 from Saigon, Indo-China, 2,952 from Colombo, Ceylon, and 2,990 from Calcutta, India. The markets of the British East Indies are

Generated on 2024-09-12 12:01 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

therefore within nine days' steaming distance at its farthest point. The distance to Batavia, Java, is 1,559 miles and to Soerabaja 1,663 miles. Manila is 1,306 miles from Nagasaki, Japan, and 1,757 from Yokohama.

San Francisco is 6,221 miles away, and New York via the Panama Canal is 11,364 miles and 11,521 via Suez. The uniting of the Atlantic with the Pacific at Panama with a ribbon of water brought a big advantage to America in the trade in the Far East. Before the canal was opened Liverpool was 2,000 miles nearer to the Far East than were the North Atlantic ports of the United States, but now the port of New York is 1,800 miles nearer to Yokohama by water than is Liverpool. The distance from the Atlantic to the Pacific coast of America is now 5,000 miles shorter.

The location of the Philippines at the confluence of the trade routes of Asia cannot be improved upon. If America is to penetrate the markets of Asia and give the merchant marine a tremendous lift, American capital must interest itself in the economic development of the Philippines with the quadruple purpose of realizing profits, balancing up the international trade of America, assisting in the establishment of an adequate American merchant marine and bringing prosperity to the people of the Philippines.

AN APPEAL FOR COOPERATION

It is almost a platitude to say that concerted action is more effective than individual effort. There is need of real concerted action! The small investor that places his surplus capital in enterprises in the Philippines is giving tremendous impetus to the world commerce and the merchant marine of America, two institutions whose fate bears a direct relation to the economic conditions in every state of the American Union. But are American investors rendering their obvious duty to them? Let figures speak for themselves. America sent $650,000,000 of investment capital abroad, not one one-thousandth of which went to the Philippines. Much of that enormous fund is to be used in rehabilitating industries in Europe and in the Far East. The point is that those Far Eastern industries compete directly with the Philippine industries. Why not, with American capital and American enterprise asserting themselves in the Philippines, produce much of the needed raw materials and ship the products in American vessels?

The sound economic thought that funds sent abroad for rehabilitation of industries makes the collection of accounts easier and the purchase of American goods bigger is acknowledged. But it must not go to the extent of entirely neglecting, as is happening now, the vital matter of relaxing the dependence of America on foreign countries for prime necessities of life which is costing her dearly. As an instance, America will have to pay no less than $75,000,000 a year for crude rubber by the restriction of production at a foreign source where 75 percent of the article is produced.

President Coolidge has decided that the Philippines will not be included for the present in the operation of the United States coastwise law. This is a clarion call to all shippers in this country and in the Philippines to discharge more heartily their obligations of giving more business to American vessels. And that should be, in all fairness and earnestness, a pleasant duty. Those who strenuously opposed the coastwise law for the Philippines on an economic basis, pure and simple, should now show their consistency by working to promote the trade between the United States and her Far Eastern possessions and spreading the slogan of "Patronize American Ships."

The commissioning of the gigantic ocean greyhound that carries the significant name of *Leviathan* on Independence Day may well be taken as a new starting point in the checkered history of American shipping to a place, let us all hope, of commanding importance. Let the momentous news reverberate to the expectant and hopeful Far East.

20,000-Ton Motor Liner Ordered by British Steamship Company

By Our Special London Correspondent

AN order has just been placed for the largest and highest powered Diesel engined vessel yet contemplated. The new ship is for the Union Castle Mail Steamship Company, and will be engaged on the regular passenger and mail service between Southampton and Capetown. She will have a gross tonnage of over 20,000, and a speed of about 18 knots, two Diesel engines being installed totaling 20,000 indicated horsepower. The length will be 630 feet, the beam 73 feet and the depth 46 feet, while in general design the new liner will be similar to the *Arundel Castle* which is a coal-fired steamer owned by the same company.

The builders will be Messrs. Harland & Wolff, Belfast, and the engines installed will be of the new double-acting four-cycle type recently developed by Burmeister and Wain, Copenhagen and constructed by Harland and Wolff under license. It will be remembered that two of these engines are already being built in Denmark for installation in a 17,000-ton motor passenger liner for the Swedish American Line, which will trade between Gothenburg and New York.

DETAILS OF THE MACHINERY

The two engines in the new Union Castle liner will each develop 10,000 indicated horsepower or about 7,500 brake horsepower at 125 revolutions per minute. They will have eight cylinders with dimensions about 34 inches bore and 60 inches stroke. In the top cylinder cover, arranged vertically, will be valves for fuel injection, discharge of exhaust gases, inlet of air and for starting purposes. In the bottom cylinder cover will be similar valves, but the combustion chamber is shaped somewhat as in a motor car engine, with a horizontal extension in which are the exhaust and inlet valves arranged vertically, one above the other, with the starting air and fuel valves horizontal. The piston rod passes through the bottom cylinder cover, but to protect it from the heat of combustion, it is surrounded by a cast iron liner and piston rings are provided, thus forming the stuffing box. The pistons will be cooled by lubricating oil, while the cylinder covers and jackets will have fresh water circulating around them. Each engine will drive two air compressors mounted in tandem to supply injection and starting air.

It is intended to utilize electricity for all purposes on the ship. In the cabins will be provided electric radiators and electric fans, while the cooking in the galley will be effected by electricity. All auxiliary engine room pumps will be driven by electric motors, while on deck the winches, boat hoists, the windlass and steering gear will be electric. The requirements for power will therefore be exceptionally large, and four Diesel driven generators will be installed in a separate engine room, arranged forward of the main engine room.

It is understood that the two motor passenger liners which have been ordered by the Royal Mail Steam Packet Company will follow along somewhat similar lines so far as the propelling machinery is concerned.

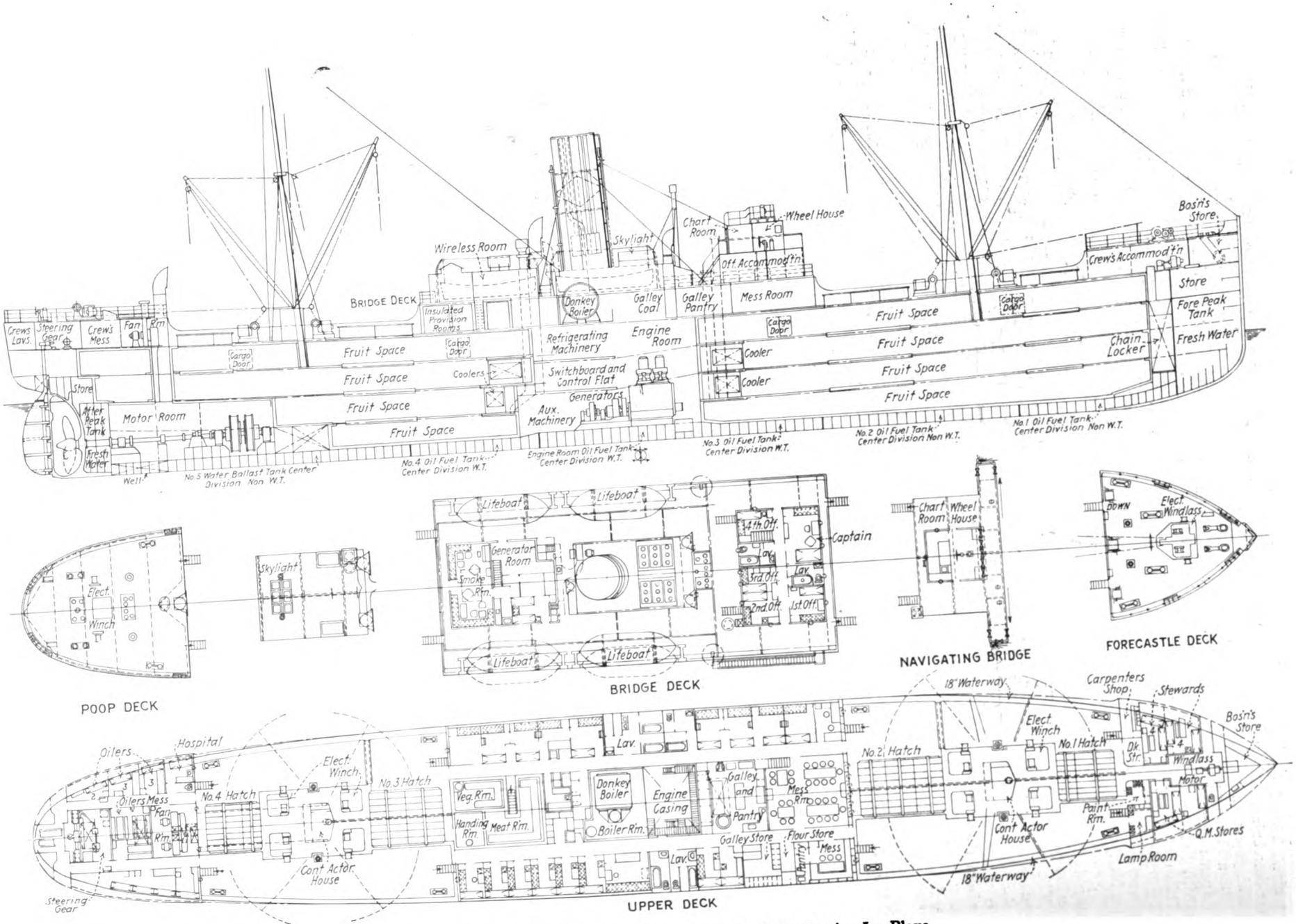
May Write Airplanes

RAPID progress in the development of the airplane and the possibility that in the near future the ocean carriers may experience competition with airships in conveying cargo have set marine underwriters to thinking that possibly they may some time find a considerable portion of their present business passing to the fire companies which are pioneering in air craft insurance. The marine men, therefore, are considering following in their fire brethren's footsteps and preparing to write this line.

Generated on 2024-09-12 12:01 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Generated on 2024-09-12 12:01 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google

Digitized by Google



General Arrangement Plans of Diesel Electric Fruit Carrier La Playa

Original from UNIVERSITY OF MICHIGAN

United Fruit Company's Diesel Electric Vessel La Playa

The Fruit Carrying Motorship La Playa

British-Built Diesel Electric Vessel Is the First of Three Sister Ships Fitted With Camellaird-Fullagar Engines

By Our Special London Correspondent

THE British shipowner demands simplicity as the first characteristic of the machinery of his ship and no doubt this partly accounts for the fact that electric propulsion, which must necessarily involve a certain amount of complication, has not received much favorable consideration in Great Britain. Nevertheless, there is a good deal of interest in the problem of electric propulsion as was evidenced at the recent trials of the Diesel electric ship *La Playa* when a very large number of the leading figures in engineering and shipping circles were present.

This is perhaps not surprising when it is considered that the *La Playa* is the first modern example of Diesel electric propulsion in Europe. It is, however, somewhat significant that, like her two sister ships, *La Marea* and *La Pearla,* she has been built for an American concern, the United Fruit Company, of Boston, the builders being Cammell Laird and Company, Birkenhead. She is 325 feet in length between perpendiculars with a molded breadth of 48 feet, and a depth to the upper deck of 31 feet 9 inches, the designed speed being 14 knots (high speed being, of course, an important factor in fruit carrying ships) and the deadweight capacity about 5,000 tons.

It might be thought that, as electric generators and motors are required, the actual weight of and space occupied by the machinery would be greater than in a normal motorship with the direct drive. It is stated that this is not the case, but that actually there is a slight saving, partly accounted for by the high speed of the electric machinery, and partly by the absence of the shaft tunnel. The builders claim that 26 percent more cargo can be carried in this vessel than in one fitted with reciprocating steam engines, but this does not represent added deadweight capacity since the cargo is to be fruit, such as bananas.

The fuel consumption is about 13½ tons daily for all purposes, whereas with a vessel equipped with oil-fired boilers and steam engines, the daily consumption would total about 31 tons. Compared with a direct-driven motor vessel, the amount of oil used on the *La Playa* is probably about 15 percent greater, due to losses in electrical transmission, and to the lower efficiency of high-speed machinery.

The Camellaird-Fullagar Machinery

In the engine room, which is amidships, are installed no fewer than four main generating sets. These each comprise an 825 brake horsepower four cylinder Diesel engine, coupled to a 500-kilowatt 220-volt main generator, and also a 200-kilowatt auxiliary generator in tandem. They are all of the direct-current type and the main generators supply their power to a single 2,500 brake horsepower propelling motor installed right aft in the motor room and direct coupled to the propeller. This motor virtually consists of two units mounted on the same shaft and it runs at about 100 revolutions per minute.

The whole of the electrical equipment, which is supplied by The British Thomson-Houston Company, has been designed to meet shipboard conditions in a hot climate and two large Sirocco fans driven by 18 horsepower motors are arranged to draw air through the propeller motors in order to keep the windings cool in tropical service.

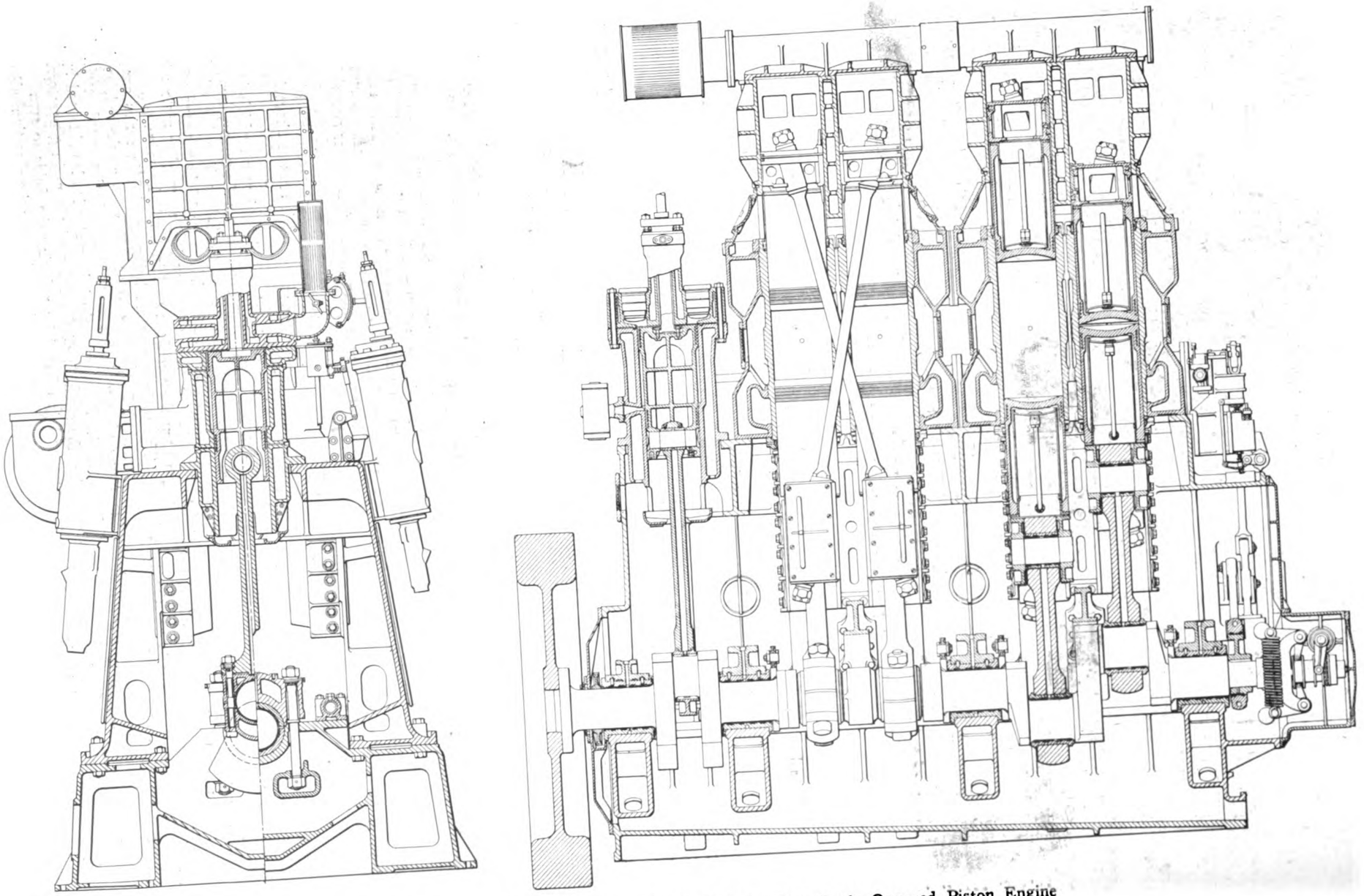
The main generators being coupled in series can supply power at 220, 440, 660 or 880 volts as desired, so that a very wide variation of power, and also speed, can be obtained. Speed control of the motor is also obtained by varying the strength of the fields of the main generators, while reversal is effected by reducing the fields to zero and then building them up again in the opposite direction, all carried out by means of a single control wheel.

At first sight, it may seem peculiar to have separate aux-

Generated on 2024-09-12 12:03 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

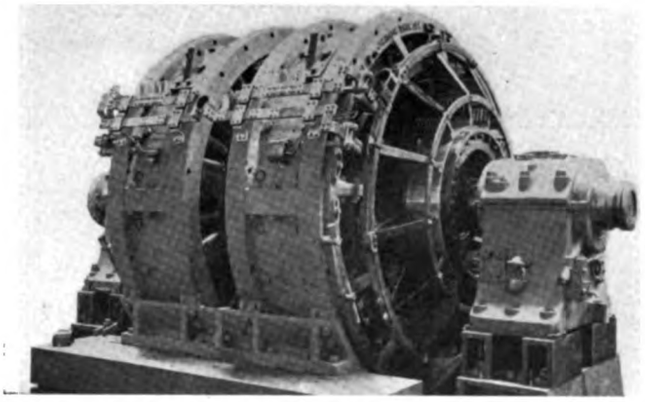
Generated on 2024-09-12 12:24 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google

Digitized by Google

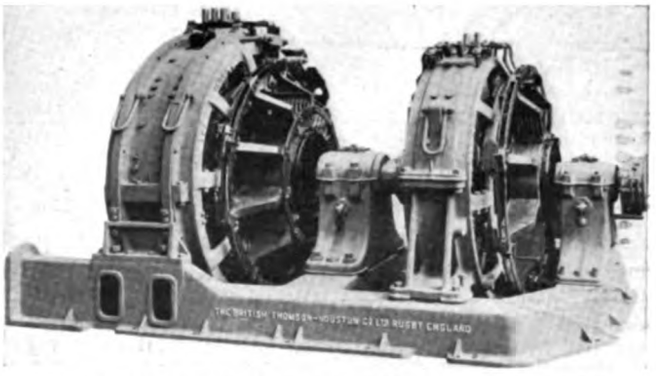


Cross Section and Elevation of Cammellaird-Fullagar Two Cycle Opposed Piston Engine

Original from UNIVERSITY OF MICHIGAN



Double Unit Propelling Motor, Comprising Two 1250 Horsepower 12-Pole Shunt Commutating Motors



Tandem Generator Set, Comprising One 200-Kilowatt, 8-Pole Shunt Commutating Pole Auxiliary and One 500-Kilowatt 10-Pole Differential Compound Commutating Pole Main Generator

iliary dynamos, as it might be thought that it would be a simple matter to take current for auxiliary purposes from the generators. In the case of this ship, however, a very large electric power is needed for the refrigerating plant, and this will probably average about 500 brake horsepower during the whole voyage, when carrying fruit. It is therefore thought to be a convenient system to have a separate generating plant for the supply of the necessary power for this purpose. Direct coupled electric motors of 100 horsepower running at 165 revolutions per minute are utilized for driving the refrigerating machinery, while all the engine room pumps are coupled to electric motors and the various winches are electrically operated. There are in all 39 electric motors varying from one horsepower up to 100 horsepower and having a total power of 950 brake horsepower.

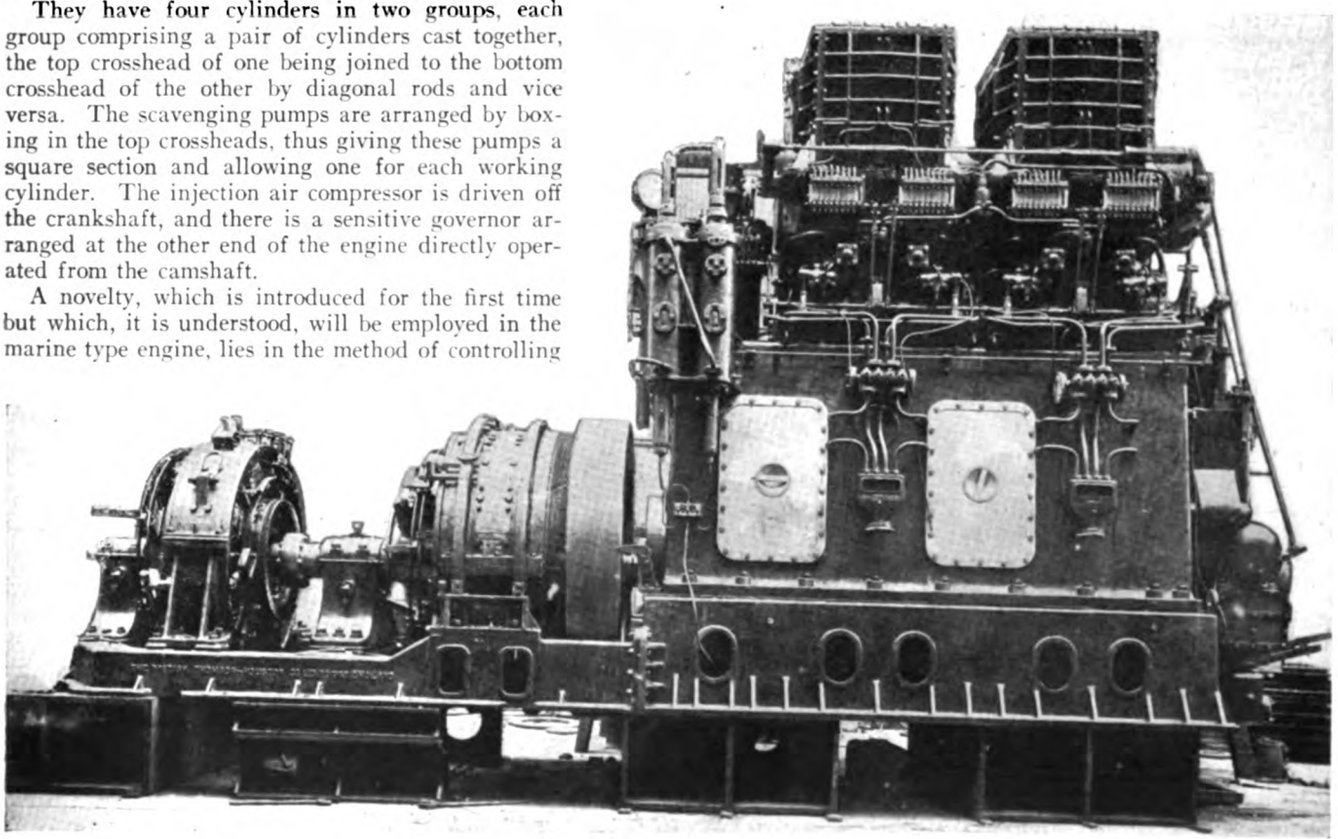
The Camellaird-Fullagar engines driving the dynamos do not differ in principle from the marine type but they are somewhat simplified, and moreover run at a much higher speed, namely 250 revolutions per minute.

They have four cylinders in two groups, each group comprising a pair of cylinders cast together, the top crosshead of one being joined to the bottom crosshead of the other by diagonal rods and vice versa. The scavenging pumps are arranged by boxing in the top crossheads, thus giving these pumps a square section and allowing one for each working cylinder. The injection air compressor is driven off the crankshaft, and there is a sensitive governor arranged at the other end of the engine directly operated from the camshaft.

A novelty, which is introduced for the first time but which, it is understood, will be employed in the marine type engine, lies in the method of controlling the fuel admission. Instead of having a camshaft with cam operated levers that open and close the fuel valves, the fuel pumps are driven direct from cams on the crankshaft and are timed to deliver the oil to the cylinders at the correct moment. Thus no mechanically operated valves are needed in the cylinders for the fuel injection but only an automatic non-return valve. This naturally has the effect of simplifying the construction of the engine and avoids the necessity for any camshaft since no exhaust, inlet or scavenging valves are fitted.

REFRIGERATING MACHINERY

The refrigerating machinery supplied by Messrs. J. and E. Hall is fitted on a flat in the engine room and consists of two horizontal single marine type CO_2 refrigerating machines driven by an electric motor, and two centrifugal brine pumps coupled to an electric motor. A smaller refrigerating machine with a separate pump is provided for cooling the pro-



One of the Main Generating Units

Generated on 2024-09-12 12:20 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

vision chambers. Four air coolers (2 forward and 2 aft) together with seven 35-inch Sirocco fans deal with the air supply to the fruit chambers.

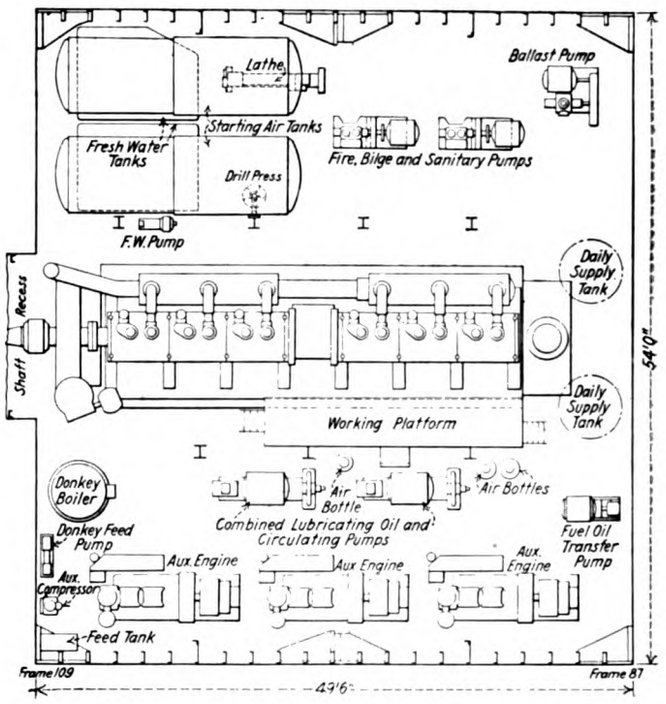
The brine piping throughout is galvanized and the necessary cross connections are arranged so that in the event of a machine breaking down brine can still be circulated from the other machines.

Donkey Boiler Installed for Heating Purposes

A small cylindrical auxiliary boiler with a working pressure of 140 pounds is provided for heating purposes and for supplying steam to the fruit elevators on shore. This boiler is oil fired on the "Hutchison" system in which the oil is supplied by gravity to the burners and is atomized by air at 8 to 12 inches pressure supplied by an electrically driven blower. This boiler also supplies steam to a 25-ton oil fuel transfer of Weir's make, while a 50-ton Lamont duplex pump is provided together with two small Weir's pumps for boiler feeding and fresh water duties.

In order to deal with the oil fuel stored in the double bottom under the very severe winter conditions frequently experienced in North American Ports the "R and D" system for reliquefying the oil fuel is installed. In this system oil fuel, after having been raised in temperature by special heaters, is discharged through revolving nozzles fitted in the double bottom tanks, adjacent to the oil fuel suction pipe, by this means raising the temperature of the oil until it can be dealt with by the service suctions.

The *La Playa* is undoubtedly an interesting vessel but it is extremely doubtful whether many ships of this class will be built for British owners except for very special purposes where the Diesel electric system shows to particular advantage.



Plan of Engine Room

Performance of the Motorship Seekonk

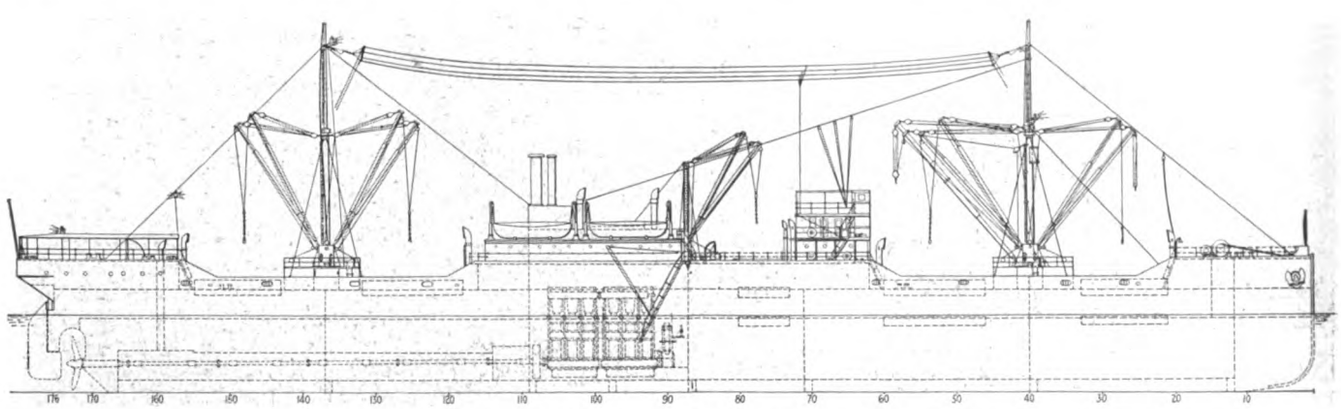
POINTING the way for the economical salvage of many of the hundreds of vessels built during the war emergency and now rusting away in every port of the country, the *Seekonk,* a former steamship, has been converted into a motorship by the William Cramp and Sons' Ship and Engine Building Company. The vessel is one of more than a hundred similar vessels fabricated at the Hog Island plant during the emergency war construction and is of 7,825 deadweight tons, 401 feet long and 54 feet beam.

Conversion to Diesel Drive

In converting the *Seekonk* very little change in the hull structure was required as the shaft tunnel, the after engine room bulkhead and the forward fire room bulkhead were retained. The fuel oil deep tanks were thrown into No. 3 hold, giving approximately 5,000 cubic feet more cargo space, and the motorship will carry approximately 1,000 tons more cargo than the steamer. A new steering gear of the hydro-electric type was installed and the old steam winches were replaced by 10 new electric winches mounted on raised platforms around the masts, arranged for handling deck cargoes to advantage. The windlass and capstan were also changed from steam to electric drive. The total weight of the deck and propelling machinery of the motorship is estimated to be the same as the steam machinery that was replaced. The revolutions of the engine will be from 85 to 90 per minute, the same as the original propeller speed, and designed for 2,300 indicated horsepower, which will give the vessel when loaded a speed of 10½ knots. The fuel consumption at sea is estimated at seven tons per day or 20 tons less than consumed with the original geared turbine installation.

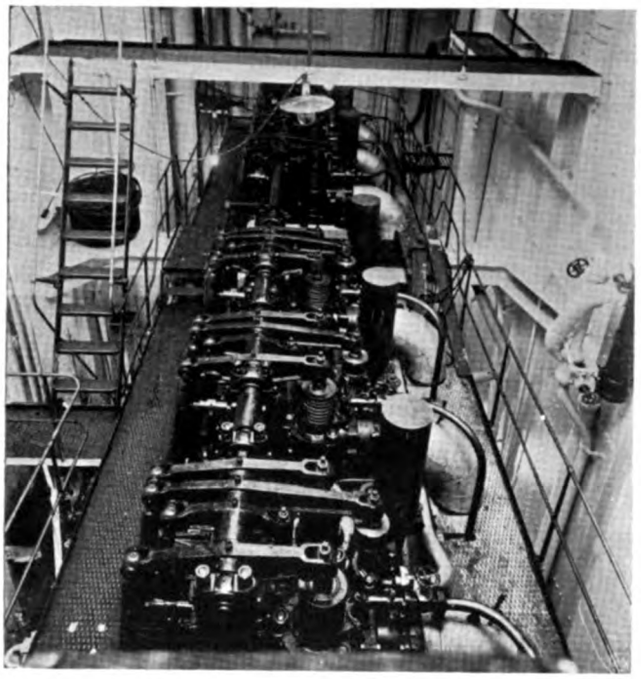
Trial Results

The *Seekonk* left the Cramp yard on November 6 for New York, and on the way down the Delaware River ran an oil consumption test. Due to the drag of the vessel, the draft being 6 feet 2 inches forward and 14 feet 5 inches aft, the designed mean effective pressure in the cylinders was attained with the revolutions not exceeding 91.

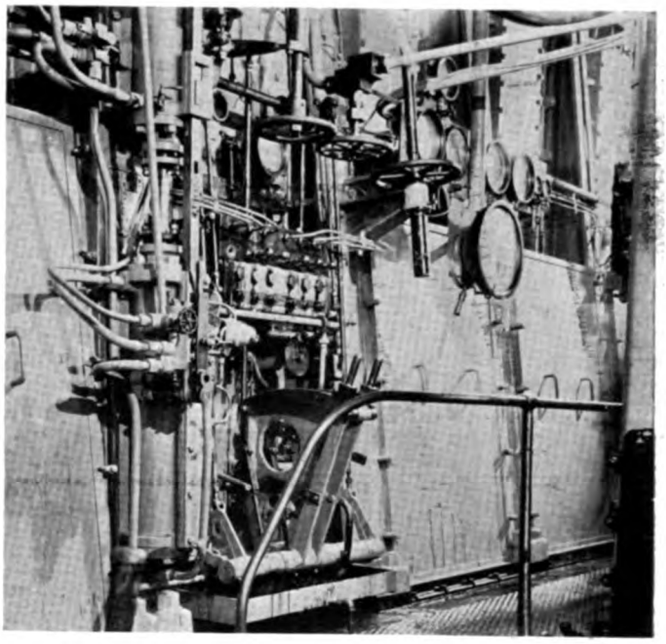


Profile of Motorship Seekonk, Showing Location of Propelling Machinery

Generated on 2024-09-12 12:18 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN



Looking Aft in the Engine Hatch



Operating Platform, Starboard Side

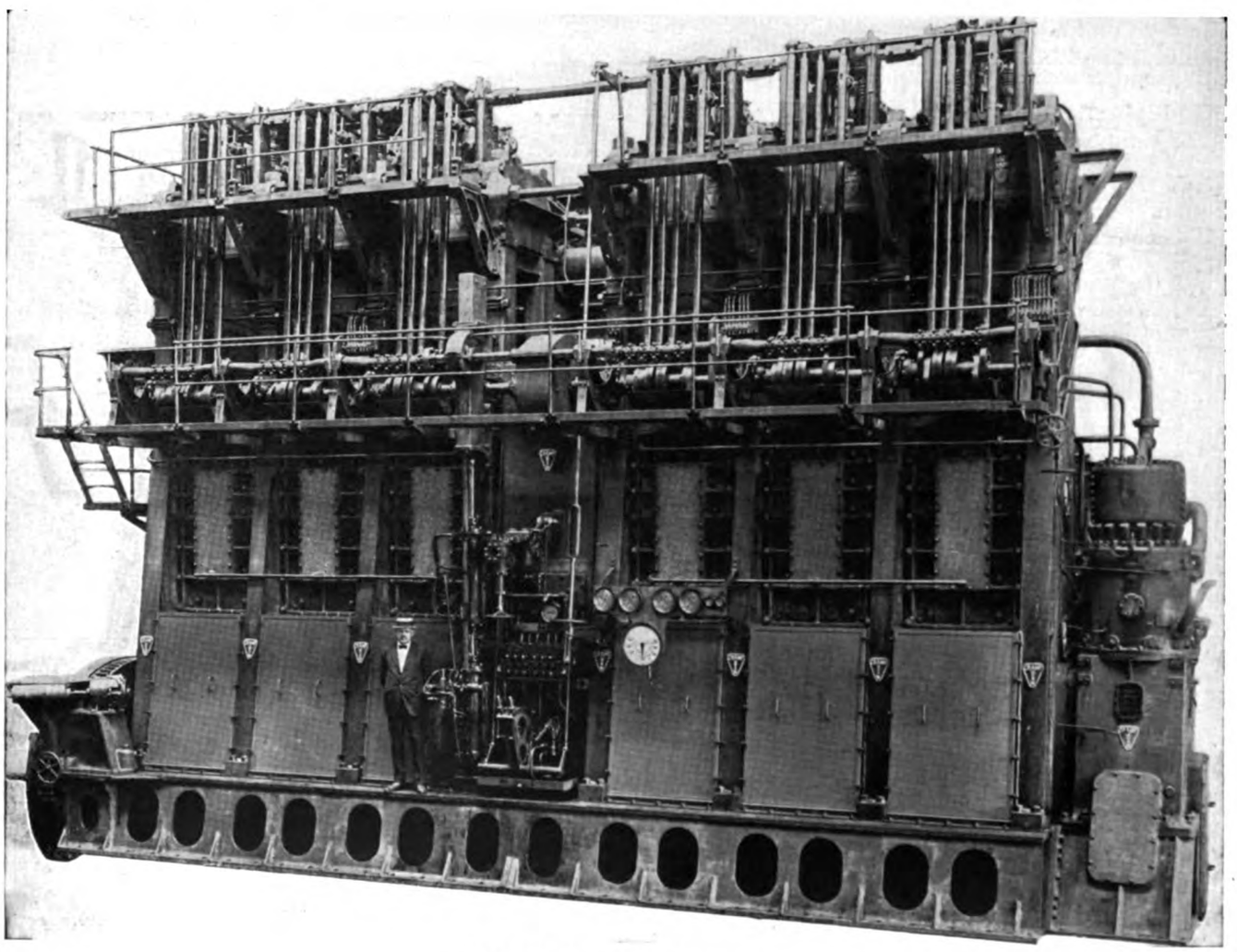
The results obtained were as follows:

Mean revolutions per minute, 90.9.

Mean indicated horsepower, main engine, 2,410.

Mean indicated horsepower, auxiliary engines, 100 (one in operation).

Total indicated horsepower, main and auxiliary engines, 2,510.



Main Engine of the Seekonk

Generated on 2024-09-12 12:02 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Oil per hour, main and auxiliary engines, 93.8 gallons.
Oil per hour, main and auxiliary engines, 705 pounds.
Oil per indicated horsepower, maine engines for all purposes, but excluding donkey boiler, 0.292 pound.
Oil per indicated horsepower, main engine and auxiliary engine, but excluding donkey boiler, 0.281 pound.
On 36 hour measurement, donkey boiler consumed for heating purposes, 0.25 ton per 24 hours.

Taking the rated indicated horsepower of engine as 2,250, when the vessel is loaded, and the propeller turning 85 revolutions per minute, the consumption for the main and auxiliary engine is 7.05 tons per day.

In the open water the revolutions increased to about 94 mean, with a maximum of 95, although the mean pressure in the cylinders was about 5 per cent less than when in the river and turning 91 revolutions per minute.

Deducting 15 minutes for stopping and getting under head way again, due to a circuit breaker being thrown and stopping the steering engine, the mean speed from Overfalls Lightship, at the mouth of the Delaware Bay, to Scotland Light was 11.8 knots.

MAIDEN VOYAGE

A dispatch received by J. Harry Mull, president of the William Cramp and Sons Ship and Engine Building Company, from the *Seekonk* states that the vessel arrived at San Pedro, Cal., from New York on December 12, having met every expectation. The elapsed time from dock to dock was 463 hours. The distance run is 4,873 nautical miles. The vessel averaged 10½ knots from dock to dock without taking into account the time lost in the Panama Canal. The engine was never stopped during this run except at the Canal locks, the machinery being reported in perfect condition.

The *Seekonk* has been chartered by the United States American Lines and is operated in the intercoastal trade.

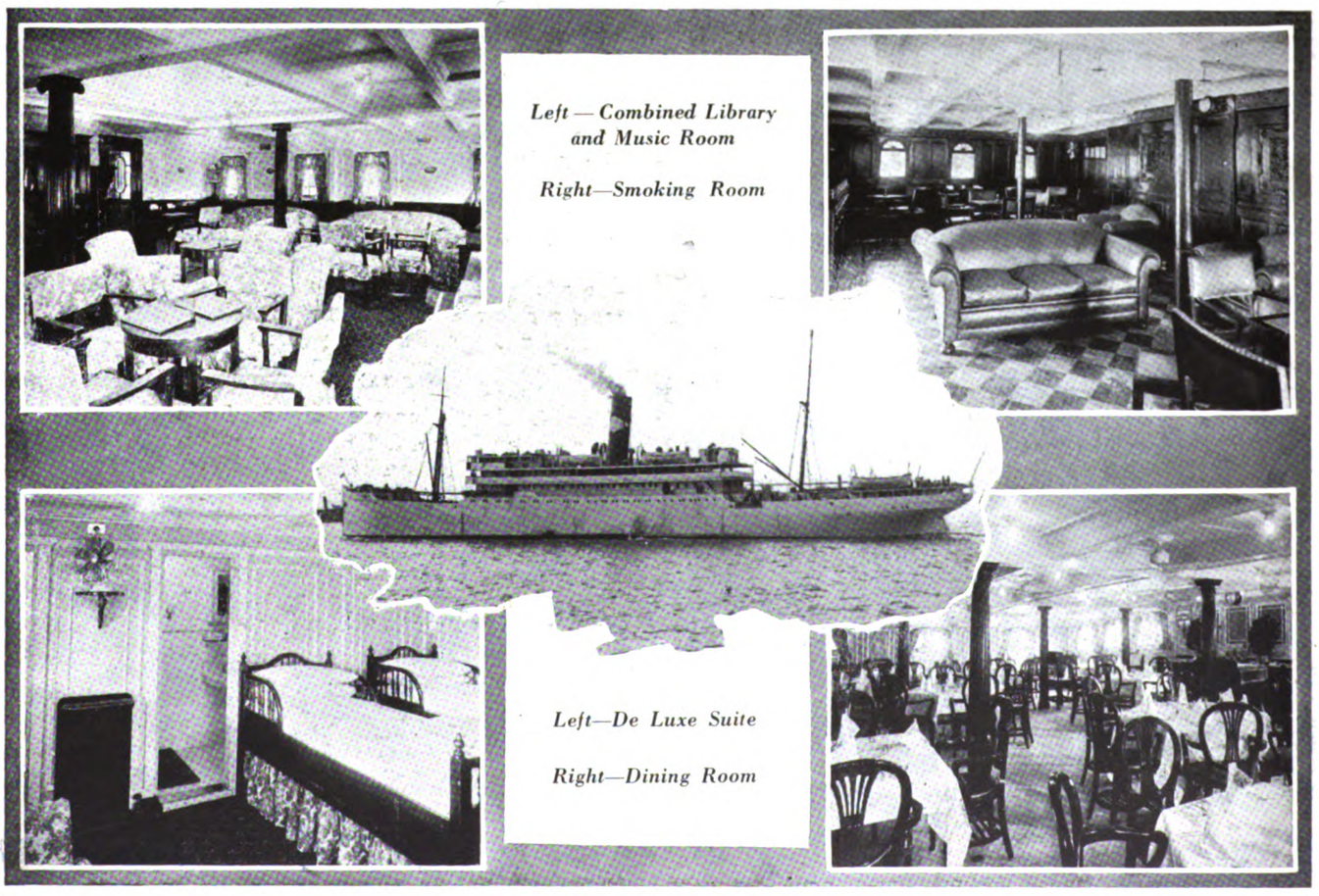
Steamship Santa Marta Rejoins Great White Fleet

Todd Shipyards Corporation Reconditions the Vessel at Robins Plant—Converted to an Oil Burner

WITH the re-entry into service on December 1 of the steamship *Santa Marta,* the United Fruit Company adds to its Great White Fleet the finest appointed vessel of her size in the world. The vessel has recently been completely reconditioned at the Robins plant of the Todd Shipyards Corporation, who completed the work thirty days ahead of the contract time.

All passenger staterooms and the de luxe suites are entirely new and four extra suites on the promenade deck have been added. Hot and cold, fresh and salt running water have been furnished to every room and additional private baths provided.

The *Santa Marta* has also been converted from coal to oil burning by the installation of the Todd oil burning system which, in the opinion of her owners, will increase her speed by 1½ knots.



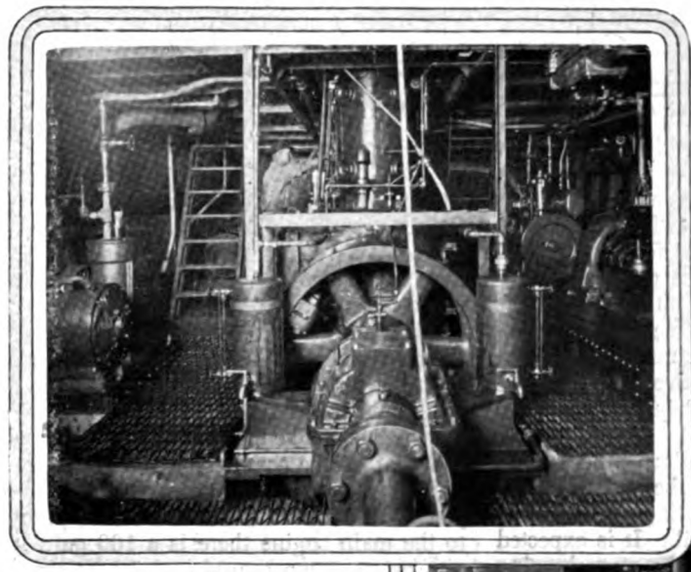
Reconditioned Steamship Santa Marta of the United Fruit Company's Fleet

Generated on 2024-09-12 12:00 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Motor Tug Hustler

Details of Machinery and Results of Operation

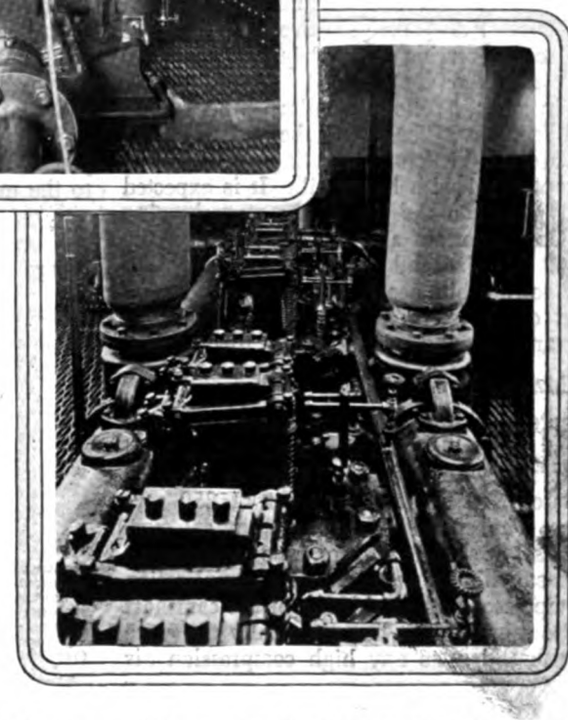
THE steel motor tug *Hustler,* a new type of oil-engined craft, fully equipped with electric auxiliaries was recently put into commission in the service of the Diamond P. Transportation Company of Philadelphia. This vessel was designed by Edward A. Edwards, naval architect of Philadelphia, and completed late in August at the yard of the Clinton Shipbuilding and Repair Company, Philadelphia, Pa.



Looking Forward in the Engine Room

The tug was designed for general inland and coastwise towing, her principal work being the moving of from one to three 800-ton deadweight sand barges up and down the length of Delaware Bay with occasional outside trips to New York and New England points. The owners decided that 300 horsepower was the minimum for efficiently performing this work and therefore the dimensions of the hull were made to accommodate an oil engine of that size together with the necessary auxiliaries and a bunker capacity to give at least a month's supply of fuel. The draft was made about two feet less than would ordinarily be desirable, especially for strictly seagoing work, but it is necessary for the vessel to reach certain bay and river points where the depth of water is limited and also navigate the canals at times. The design shows a fairly full bodied hull, but with a good deadrise to the amidship section and a minimum displacement consistent with the weight to be carried and a general freeboard.

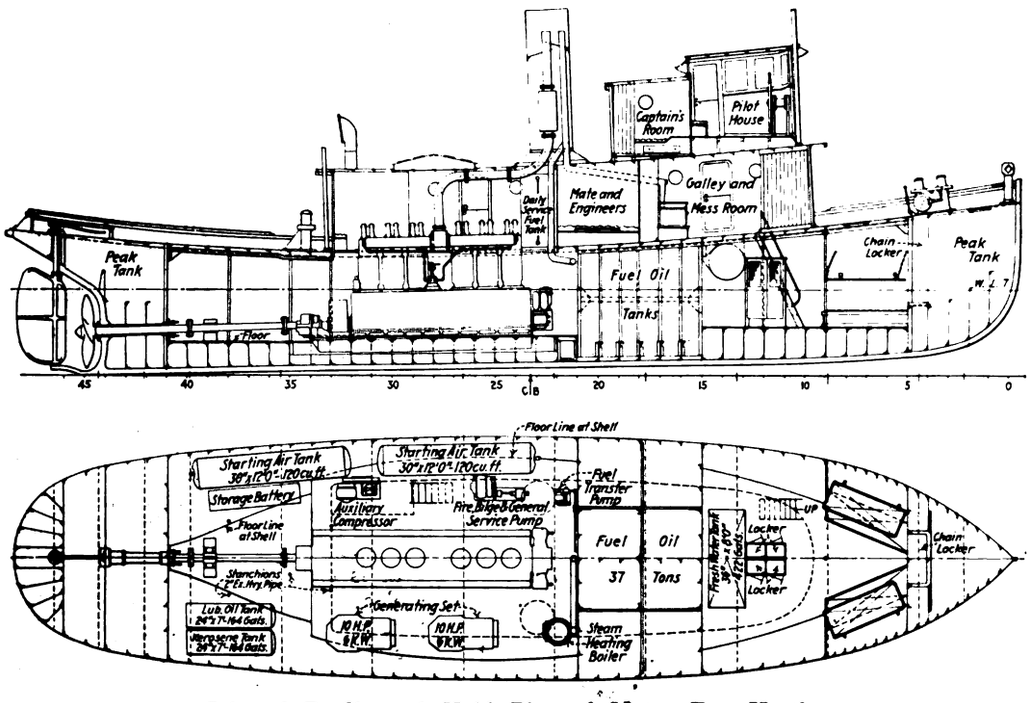
The after waterlines are not run out as fine as might be desirable for fast running, but as the boat is designed primarily for towing conditions involving a speed of around 6 knots the ends were made short to cut down overall length and first cost. The forward sections have been given a flare which tends to prevent diving and shipping water in a heavy sea and at the same time gives increased deck room. A high sheer and a minimum freeboard of about 15 inches when fully bunkered are additional features of seaworthiness and will make for comfort and safety when the boat is on coastwise trips. The fore and aft distribution of weights is important on a vessel of this type where the main engine and fuel make up nearly 50 percent of the total displacement and affect the trim to a very large extent. In the present case it happens that the weight of the main engine and auxiliary machinery about equal the weight of the fuel and therefore these two were so placed as to provide approximately equal moments forward and aft of the center of buoyancy.



Top of Main Engine

The construction is somewhat heavier than would actually be required by the American Bureau of Shipping or Lloyds for a steel vessel of this size as it has been found that strict adherence to classification society rules make a hull too light for the rough work usually encountered by the average towboat. The minimum weight of shell plating is 12.5 pounds

Generated on 2024-09-12 12:18 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN



Inboard Profile and Hold Plan of Motor Tug Hustler

(5/16 inch), while the garboard strakes are 15 pounds (3/8 inch) as are also all plates at the bow which would come in contact with ice in winter running. The forward part of the shell is further strengthened against ice pressure by intermediate frames extending well aft from the stem. The forward frames are also backed up by three sets of longitudinal stringers on each side. All shell seams in way of the fuel bunker are double riveted. There are two oil-tight bulkheads on frames 15 to 21 forming the fuel bunker, and two watertight bulkheads at the peaks.

The construction in general follows standard practice and presents no unusual features. The stern tube and tail shaft are fitted with the McNab-Vickers lubricating appliance in which the tube is kept filled with heavy oil. It is expected that this will greatly lengthen the life of the stern bearing and shaft sleeves. One important advantage gained over the average steam tug of this size and power is the possibility of placing the main towing bitt nearly one-third of the vessel's length forward of the stern, a feature which greatly facilitates handling and steering with a heavy tow behind.

Machinery Details

The engine adopted is the Ingersoll-Rand, 4 cycle moderate compression type with the Price combination head system of opposed sprays, with cylinders 13 inches bore, 19 inches stroke and rated 320 brake horsepower at 250 revolutions per minute. The engine has the mechanical simplicity of the semi-Diesel or surface ignition type requiring no high pressure air blast with its accompanying complication of three stage air compressor and no shifting of the camshaft for reversing. At the same time it has practically the same economy of fuel consumption as any high compression air blast type.

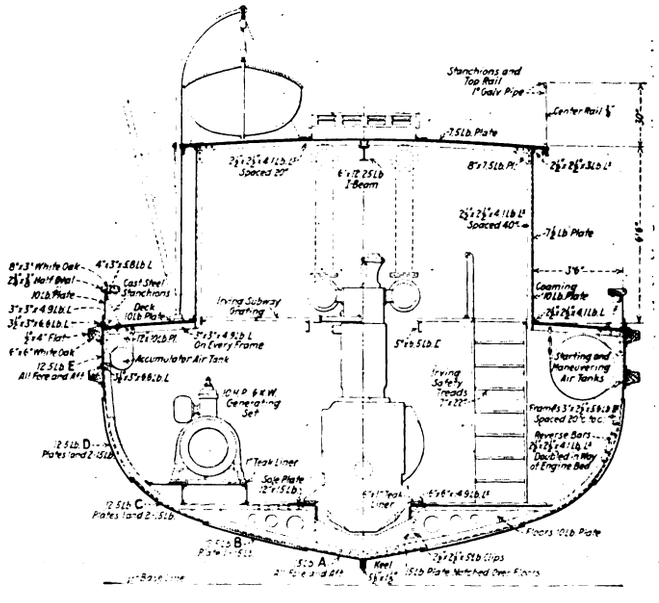
The engine has two main fuel pumps each supplying a group of three cylinders through a distributor.

At the forward end of the engine are placed a 6 inch by 6 inch air compressor for furnishing starting and maneuvering air at 200 to 250 pounds pressure, and two water pumps either of which may be used for jacket circulation or general service while the engine is running.

For the auxiliary generating sets it was at first planned to use gasoline engine driven units owing to the scarcity of suitable oil engines of around 10 horsepower which was the size required. However, as this would mean carrying two kinds of fuel, increase insurance rates and add to the operating expense, it was finally decided to use about the only oil engine set available which would operate on the same fuel as the main engine. The two sets installed consist of 8 horsepower single cylinder Mianus oil engines direct conected to 5 kilowatt General Electric 110 volt direct current generators. One set is of sufficient size to operate any of the auxiliaries under all ordinary conditions, and the two are arranged for parallel operation if necessary in an emergency which might require the fire pump at its full capacity. The Mianus engine uses the Leissner system of fuel injection and shows a fuel consumption of around 0.50 pound per brake horsepower hour. This means a fuel cost of only about 2⅓ cents per hour as against 15 cents per hour which would be required to run a gasoline set of the same size.

The auxiliary air compressor is a 4½ inch by 5 inch Ingersoll-Rand machine, hopper cooled and connected by a short belt drive with an idler pulley to a 7½ horsepower 110 volt Diehl ball bearing motor of the enclosed and ventilated marine type. The motor speed is 1,150 revolutions per minute and that of the compressor 450 revolutions per minute.

The water pumping arrangements are exceptionally complete. In addition to the two 2 inch plunger pumps attached to the main engine there is a 100 gallon per minute Blackmer rotary pump geared to a 10 horsepower 110 volt Diehl ball bearing motor. This pump has 2 inch suction and discharge connections and is good for 100 pounds pressure in



Midship Section

Generated on 2024-09-12 12:05 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

case of fire. For ordinary bilge, deck and ballast work it requires only about 3 horsepower and therefore the motor is equipped with a Cutler-Hammer speed regulator allowing it to be operated at about half speed except when the full capacity of the pump is needed. All three pumps are manifolded so that any one may be used for any purpose.

The fuel transfer pump is a 1 inch Blackmer rotary with a capacity of 20 gallons per minute and is geared to a ¼ horsepower 110 volt Diehl ball bearing motor of the enclosed waterproof type. There is also a hand transfer pump of the same make for emergency use. The ¼ horsepower motor is on the engine room room lighting circuit so that this pump may be operated from the storage battery. The fuel is lifted from the main bunker to the two day tanks located above the grating at the forward corners of the engineroom. These tanks have a capacity of 266 gallons each or a total of about 32 hours' supply for the two. The fuel is fed from the day tanks through a duplex filter to the injection pumps on the main and auxiliary engines.

The only power operated deck machinery is an Alan Cunningham electric capstan located alongside the after towing bitt and used for handling lines. It is of the combination hand and power type with a back gear giving double power at half speed when reversed. The motor is 5 horsepower 110 volt Diehl ball bearing semi-enclosed type turning at 720 revolutions per minute. It is hung from the under side of the deck and drives the capstan through a worm gear. The controller is a Cutler Hammer reversible drum type with operating handle projecting through the after end of the house to a convenient position alongside the capstan.

LIGHTING ARRANGEMENT

A 110 volt, 112½ ampere hour Edison storage battery furnishes current for lighting and is arranged for charging from either of the generating sets. A switchboard furnished by the Smith-Meeker Engineering Company, New York, is located on the starboard side of the upper engine room.

Steam heat for the pilot house and captain's room, forecastle and two staterooms is furnished by a small low pressure boiler located in the forward starboard corner of the lower engine room and arranged for burning fuel oil.

OPERATION OF THE TUG

The tug has been in continuous service since the last week in August, averaging at least 16 hours per day, and her performance has been so highly satisfactory that the owners have determined to eliminate steam tugs from their fleet as soon as possible.

The fuel consumption is averaging from 15 to 16 gallons per hour loaded (towing two or three barges), and about 10 gallons per hour light, the latter figure being due to the fact that the full power of the engine is not used when running at its rated speed with the vessel light. The full load fuel consumption works out approximately 0.400 pound per brake horsepower hour which is 0.030 pound better than the engine maker's guarantee. The fuel used is Mexican distillate running 28 to 34 degrees Baumé and costs around 4½ cents per gallon. One bunkering of 37 tons lasts about 40 days assuming full load consumption at 16 hours per day. This makes a fuel cost of 72 cents per hour maximum for the main engine.

The fuel cost for the auxiliary engines is very small as they are seldom used except for battery charging which possibly takes a maximum of 16 horsepower hours per day, and at a rate of less than 0.50 pound per horsepower hour this would amount to only a little over a gallon or less than 6 cents per day.

The lubricating oil consumption runs about 1 gallon for 4,000 horsepower hours for the main engine, or 1.16 gallons per 16 hour day. This is a remarkably low figure considering the very thorough manner in which the engine is lubricated and is an important factor in the total operating cost.

No small part of the excellent performance of the *Hustler* is due to her propeller which was very carefully designed in accordance with the Dyson method by Mr. O. J. Peterson, and cast by the American Manganese Bronze Company of Philadelphia, the metal being their "Hy-Ten-Sl" Bronze showing a tensile strength in this particular wheel of 92,000 pounds per square inch. The propeller has the following characteristics:

Number of blades	4
Diameter	6 feet 3 inches
Pitch	3 feet 9 inches
Projected area	14.7 square feet
Projected area ratio	0.475
Developed area	15.9 square feet
Developed area ratio	0.519
Pitch ratio	0.600
Brake horsepower	300
Revolutions per minute	240

The principal dimensions, of the *Hustler* are as follows:

Length over all	82 feet 6 inches
Length on the load waterline	76 feet 0 inches
Breadth on the load waterline	19 feet 9 inches
Depth, mean molded	9 feet 0 inches
Draft, mean molded	6 feet 9 inches
Displacement at 6 foot 9 inch draft, tons	159.6
Block coefficient	0.538
Midsection coefficient	0.798
Prismatic coefficient	0.674
Tons per inch at waterline 7	2.7
Moment to alter trim 1 inch	11.5 foot tons

Fireboat Deluge, Largest of the Type Ever Built in America

IN July, 1922, a contract was placed by the Board of Commissioners of the Port of New Orleans with the Johnson Iron Works of New Orleans for what will be the largest and most powerful fireboat ever built in this country. The principal particulars of the boat, which was christened the *Deluge*, are:

Length overall, molded	138 feet 6 inches
Length between perpendiculars	125 feet 3 inches
Beam, molded	29 feet
Depth at the lowest point of sheer on the side	15 feet 6 inches
Draft loaded, aft	12 feet 6 inches
Draft loaded, forward	10 feet 6 inches
Speed	13 knots

SPECIAL FEATURES OF THE FIREBOAT

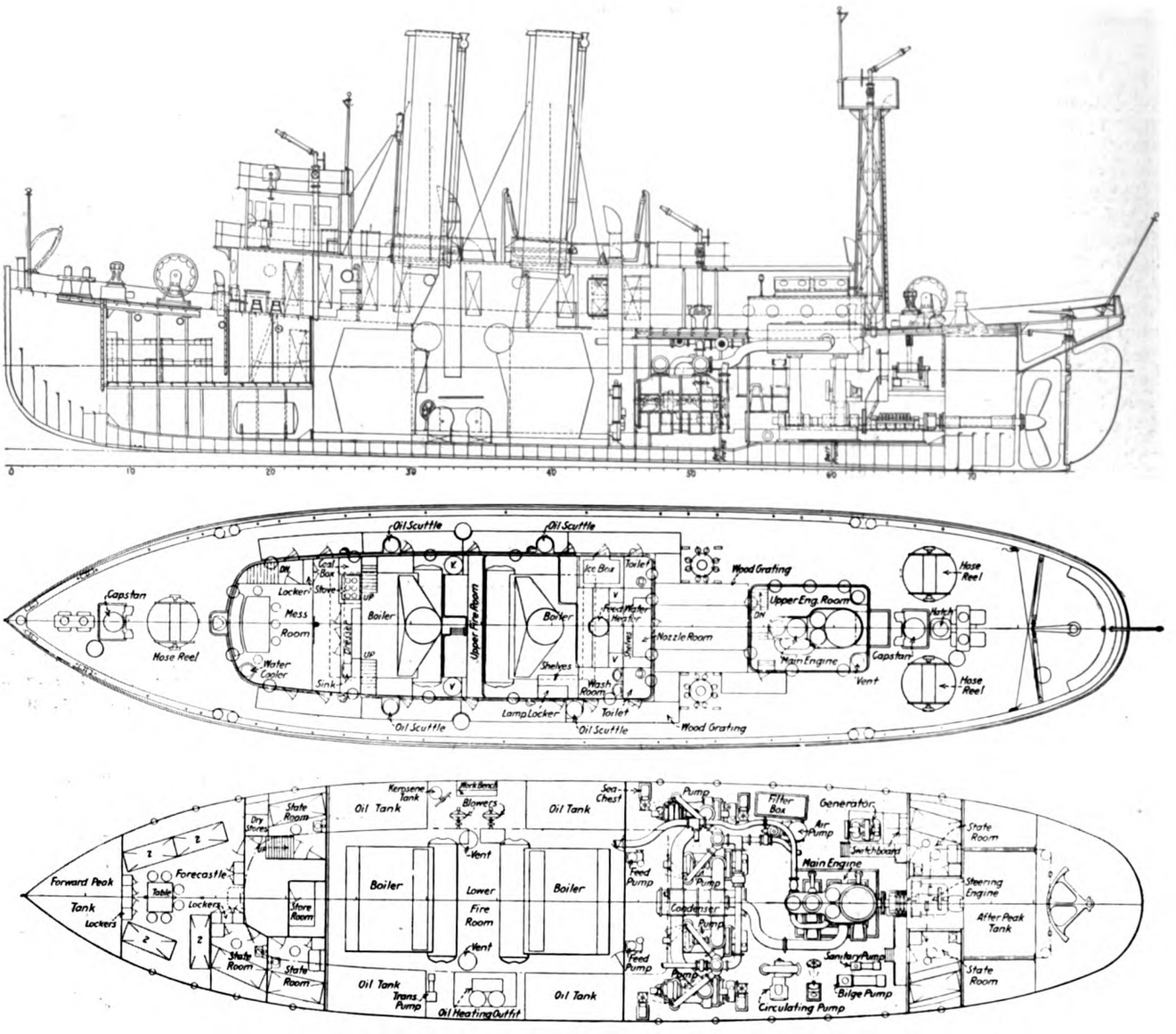
Among other features of the *Deluge* is the arrangement of apparatus on the deck as well as the design of the superstructure which provide a maximum space for the operation of the fire fighting apparatus. The hull, deck houses, deck rails, in fact the entire above-deck structures, are of steel, so that the fire hazard is reduced to a minimum.

The propelling machinery consists of one vertical inverted direct-acting compound engine with cylinders 20½ inches and 46 inches diameter by 28 inches stroke. All pumps are independent. The surface condenser, which is also independent, contains 3,650 square feet of cooling surface.

AUXILIARY MACHINERY

The auxiliary machinery on the fireboat consists of one Reilly feed water heater capable of heating 60,000 pounds of feed water per hour; a vertical engine twin air pump with a steam cylinder 14 inches in diameter and twin air cylinders 26 inches in diameter, and a centrifugal-type circulating pump with a capacity of 3,800 gallons per minute. The main feed pump is of the vertical simplex type having cylinders 10 inches and 6 inches in diameter with 14-inch stroke.

Generated on 2024-09-12 12:02 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN



Inboard Profile and Deck Plans of New Orleans Fireboat Deluge

The auxiliary feed pump is a duplicate of the main feed. The bilge pump is a horizontal simplex with cylinders 10 inches in diameter and 12 inches stroke. For sanitary service a horizontal simplex pump is supplied with cylinders 5½ inches in diameter and 7 inches stroke.

Fire Fighting Equipment

A battery of four multiple-stage turbine-driven centrifugal-type fire pumps constitutes the main fire fighting equipment. Each pump has a capacity of 2,600 gallons a minute with a pressure at the pump of 225 pounds per square inch. Four 7-inch monitor nozzles are arranged as follows: One on top of the pilot house, two amidships on top of the main house and one on a steel tower aft of the engine hatch about 30 feet above the waterline. There are also two steel turrets each fitted with eight 3½-inch hose gate valves. The boat is also equipped with six 3½-inch rail nozzles on swivels. The total capacity of these five pumps is about 13,000 gallons per minute at a pressure of 150 pounds per square inch and about 10,500 gallons at a pressure of 225 pounds per square inch.

The pumps are so arranged that one to three or four pumps can be used separately or together and cross connected so that any pump can be used on any nozzle.

There are three steel hose reels each having a capacity of 1,500 feet of 3½-inch hose or 2,000 feet of 2½-inch hose. The fire fighting equipment on the boat is very complete and includes hose holders, fire extinguishers, fire axes, smoke and ammonia helmets, gas masks, oxygen breather apparatus and the necessary nozzles, siamese fittings, etc.

Steam is furnished by two Babcock and Wilcox water-tube boilers having a total heating surface of 7,150 square feet under a working pressure of 225 pounds per square inch. The maximum evaporation is guaranteed to be not less than 60,000 pounds of water per hour.

The boilers are fitted with double fronts. Air is supplied by two turbine-driven fans delivering 25,000 cubic feet of air a minute at a static pressure of 2½ inches of water. The boilers are fitted for burning fuel oil with burners of the Babcock and Wilcox cuyama type.

The heaters, pumps and strainers were furnished by the White Fuel Oil Engineering Corporation. There are four fuel oil tanks built into the vessel having a total capacity of 75 tons.

The vessel is electrically lighted throughout, being equipped with a 10-kilowatt generator supplying current at 110 volts and capable of delivering 91 amperes at 475 revolutions per minute.

Generated on 2024-09-12 12:21 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Rudder Manipulation for Efficient Ship Operation

By Elmer A. Sperry, E. D.

AS time advances, competition in the realm of water carriers is becoming constantly more pronounced. Shipowners everywhere are facing an era when every means of operation looking to increased economy should be investigated. It is, therefore, timely that certain studies, covering a new field, conducted during the past year and a half relating to rudder manipulation, be here related.

There is practically no literature existing, covering this important subject, for up to the present time there have been no instruments calculated to make an accurate record of the exact movements of a ship and especially to couple up these motions in their various planes to rudder manipulation.

It is not out of place to say that not until the advent of the gyro compass did we have an instrument of sufficient precision and directive power to act as a sturdy base line from which recorders could be operated. Ships' course recorders are now available which operate with an accuracy that shows a change of heading of one-sixth of a single degree; an example of such an instrument being shown in Fig. 1. With this instrument a beginning of the study was made. The fact that they are continuous in ink and carefully synchronized with the ship's chronometer gives them value for permanent reference.

Gyroscopic Roll, Pitch and Rudder Angle Recorder

This recorder has given results indicating the necessity of taking one further step. More than a year ago it was seen that in order to complete the studies and find just what was possible in relieving the ship of extra helm more data should be associated with the chart. A new type of instrument was designed which gives, in addition, a continuous record of the ship's roll, pitch and rudder angle. An unique feature of the design here lies in the use of a stabilized gyroscopic pendulum for obtaining the true angle of roll and pitch. The method of operating the pens, which trace the records for the above factors, as well as the motor driving the record and the clock mechanism for giving time indications every 10 seconds are plainly seen in Fig. 2.

It is a fact that every class of ship has different steering characteristics, some very widely different from others. For

In its various applications, the gyroscope is steadily gaining in importance on shipboard—as an aid to navigation in the gyroscopic compass, in contributing to increased comfort and speed in the stabilizer, in actual steering and now in making possible an accurate record of a ship's motions under all conditions.

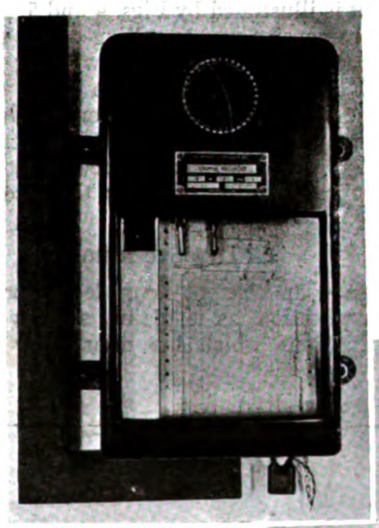


Fig. 1.— *Standard Form Course Recorder*

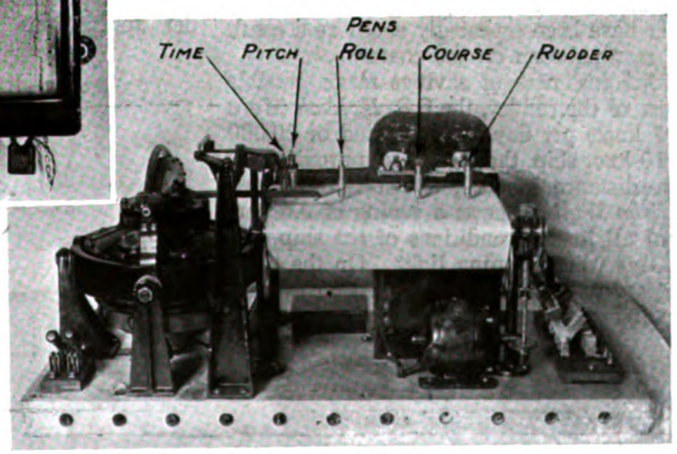


Fig. 2.— *Instrument Furnishing Continuous Graphic Record of Roll, Pitch, Course and Rudder Angle*

Generated on 2024-09-12 12:20 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

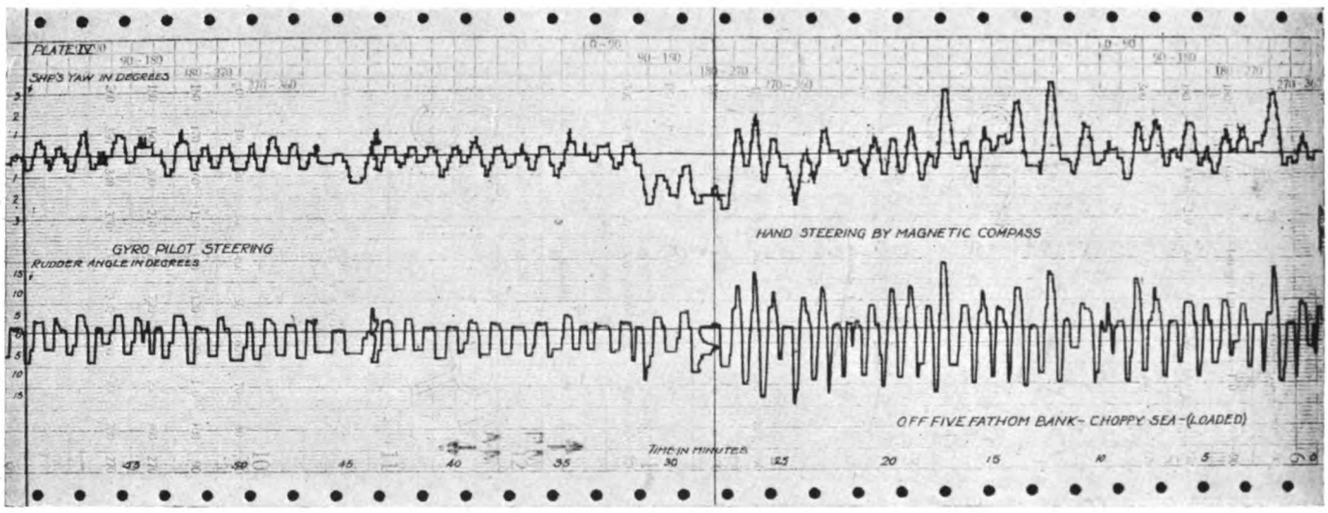


PLATE IV
SHIP'S YAW IN DEGREES
GYRO PILOT STEERING
RUDDER ANGLE IN DEGREES
HAND STEERING BY MAGNETIC COMPASS
OFF FIVE FATHOM BANK - CHOPPY SEA - (LOADED)
TIME IN MINUTES

Fig. 3.—Simultaneous Record of Ship's Heading and Rudder Angle Taken on the W. H. Tilford. The Power Loss Resulting from Rudder at the Right Can Be Imagined

example, it is a matter of common knowledge that there is a certain class of ship which tends to head into a beam wind while others head out or away from the wind, other influences being the same. Some ships respond more completely to the Suyehiro phenomenon, that is the law coupling up rolling with yawing, discovered and worked out by the Japanese scientist, Dr. K. Suyehiro. Others have a more pronounced differential between what is known as the weather yaw and the steering yaw. All yawing of vessels tends to give a bad angle of attack and absorb and waste power independently of the losses due to rudder angle.

Reduction in Yaw or Rudder Angle Cuts Down Mileage Run

To any one who has observed a ship making 15 knots on a straight course slow down to 8 or 10 knots on a turn with helm hard over it at once becomes apparent that a reduction in either yaw or rudder angle, or both, will result in a proportional saving of revolutions per mile. On one comparatively short run out of New York 10,000 revolutions of a 21-foot propeller have been repeatedly saved as a result of improved rudder manipulation on the course.

To cite some further instances of savings made possible through intelligent use of the rudder, the S.S. *Hokkoh Maru* reports a saving of 7 knots per day over a period of 20,000 miles. As this is a 10-knot ship, the saving is approximately 3 percent. Over a distance of 100,000 miles combined running, the S.S. *Elisha Walker* shows a saving of 3.6 percent as an average of all loaded conditions of the ship, but it is not as high as this when running light. On the other hand, the *W. H. Tilford* in 25,000 miles showed an average of 5½ percent, the higher percentages obtained when running light.

The charts following are given as a further showing of what has actually been accomplished under a wide range of conditions. Some of these illustrate hand steering by magnetic compass, also hand steering by gyro compass, and some automatic steering by the gyro pilot. It is believed that the studies made in securing these charts have considerably extended the boundary line of actual information on this subject. The charts are given more to show what the possibilities are and what can be done, regardless of the specific method employed.

Comparison Between Hand and Gyro Pilot Steering

Fig. 3 shows a comparison between hand steering by magnetic compass and gyro pilot steering. Note the large amount of rudder angle as compared with a lesser amount (to the left) under precisely the same weather conditions and heading. The average rudder angle per minute, obtained by multiplying the angle by the number of rudder applications, here bears the ratio of 1 to 3. The course record is amplified both as to time and angle, the former ten times and the latter five.

One of the numerous lessons that the apparatus of Fig. 2 brings out is illustrated by Figs. 4 and 5. Here the Suyehiro effect in responsive yaw to rolling of the ship is shown in a most remarkable manner, the yaw being generally synchronous with the roll. This is shown by the record of the ship's course, the second from the right on the charts. Parts of the charts have been selected where the rolling has different amplitudes. The two charts show a marked difference in helm application, illustrated by the record farthest to the right.

The Steering Yaw

In Fig. 4 an attempt is made to correct each yaw by rudder application, as is plainly seen by the frequent rudder applications which are measurably synchronous with

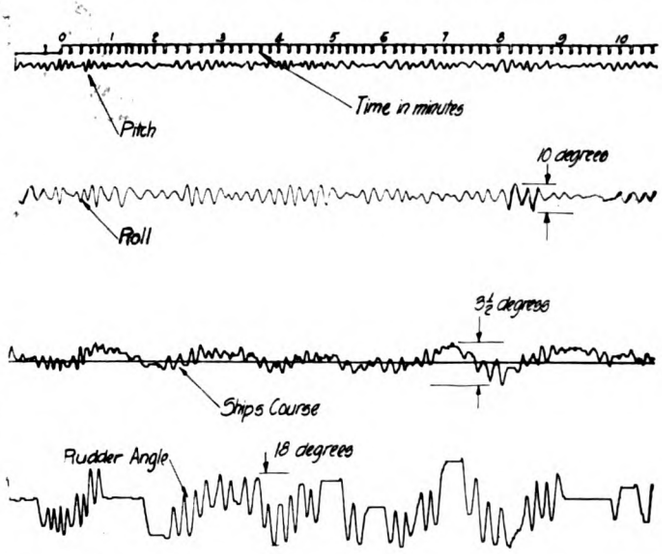


Fig. 4.—Continuous Record Taken on Instrument Illustrated in Fig. 2, Automatic Steering, Showing Course, Rudder Angle, Roll and Pitch. Note the Suyehiro Effect of Roll and Yaw in Synchronism with Rudder Showing Every Yaw

Generated on 2024-09-12 12:17 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

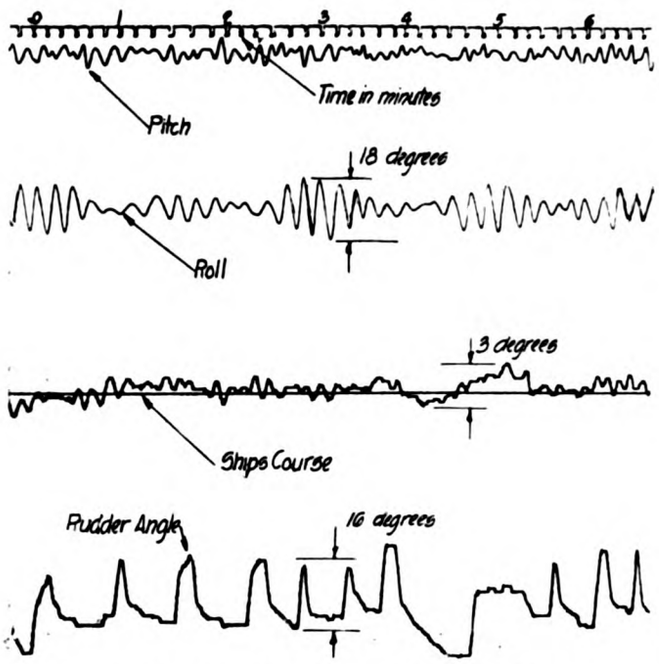


Fig. 5.—Continuation of the Record Shown in Fig. 4, Automatic Steering. The Rudder Control Has Been Here Adjusted to Respond Only to a True Yaw, and to Reject the Small Yaw Caused by Rolling

the yawing. By noting Fig. 4 a little more carefully it will be seen that there is another slow period yawing of the vessel super-imposed upon the smaller frequencies, which may be called the steering yaw. It has been demonstrated that all that is necessary to keep a ship on her heading is generally to correct the last described sinuosity and pay as little attention as possible to the first. That it is possible to do this is shown by the chart, Fig. 5. Here the number of rudder applications is greatly reduced, although it will be seen that the rolling and pitching of the ship were much greater than in Fig. 4.

To show how far this same phenomenon of reduction in rudder application can be carried, attention is called to another chart, Fig. 6, taken under favorable weather conditions on a ship crossing Nantucket Shoals.

A ship under way is subjected to many disturbing forces in its effort to steer a straight course. These may be roughly classified under two headings: Those acting by virtue of the ship's motion; the forces external to the ship.

Disturbing Forces Due to Ship's Motion

The first classification includes the wake current, the slip stream set up by the propellers, and the lateral effect due to the revolving propeller blades, all of which exert a more or less constant disturbing force. Among other constant factors under this heading may be mentioned the effect of formation of after body. Ships having the after deadwood cut away to any extent are notably sensitive to rudder and will turn very quickly. In this case, maneuvering power is obtained at the expense of headway. The effect of a ship slewing broadside-on when turning is here seen in an exaggerated form as such a type will cover a considerable distance in this fashion before gaining headway in the new direction. A properly trimmed ship, when heading into the wind, will practically steer itself, as the forces producing yaw are here almost exactly balanced.

External Disturbing Forces

Among the external disturbing forces acting, the effect of a beam wind or sea may be cited as necessitating more or less helm constantly on one side to hold course. A good example of this condition is seen in Fig. 7 where "Metal Mike," as the sailors have dubbed the gyro pilot, duplicates the performance of a wheelsman in carrying helm on one side. The man uses much needless helm, however, resulting in loss of way. The machine supplies only sufficient helm *and on the proper side*, to hold the ship steady. In the figure, with wind and sea on the quarter, helm was needed only on one side and the gyro pilot adjusted itself instantly to meet the condition. The man used helm equally on both sides, showing that more than half of his rudder motions were not only wasted steam at the steering engine but resulted in creating yaw and slowing down the ship.

An appreciation of the power losses which arise from inefficient handling of the rudder is best brought about by analyzing the action of a ship when changing course. Immediately the helm is put over, the ship is found to acquire angular velocity about a point somewhere forward of the bow. The turning is opposed by resistance of the water to lateral motion. The resistance being quite small at first, the velocity of turning rapidly increases. This increase results in a still more rapid increase (as the square of V) in resistance until the two opposing forces balance and the turning velocity becomes constant. The ship (assuming the helm is still held down) thereafter traces a circle, the bow main-

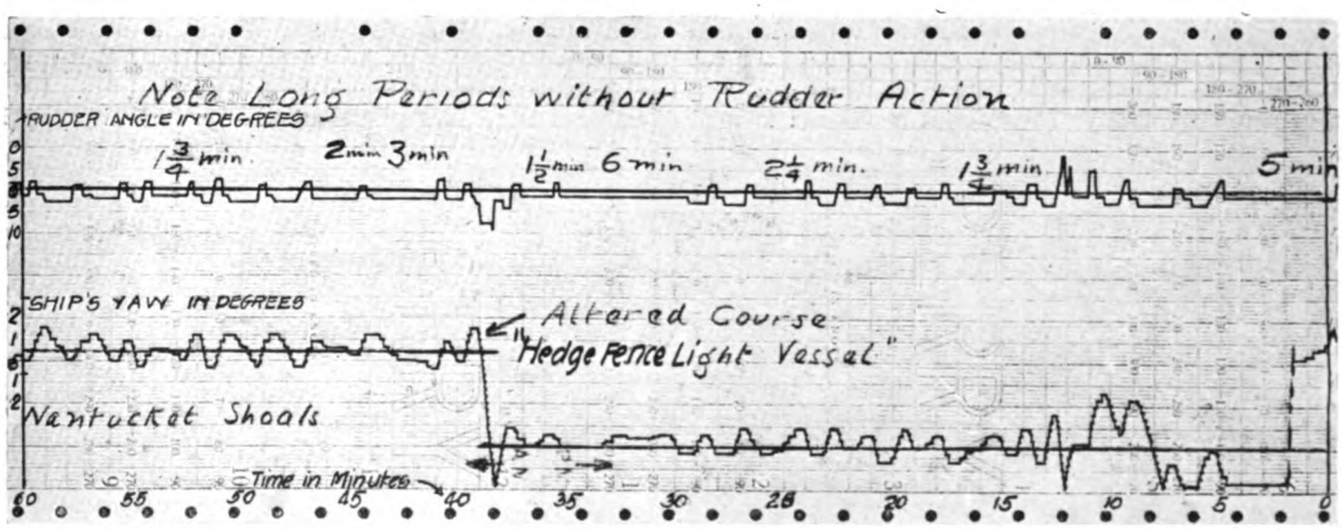


Fig. 6.—Automatic Steering on the S. S. Harry Luckenbach, Passing Through Nantucket Shoals. Note the Infrequent Use of the Rudder—a Most Remarkable Feature, as This Water is a Maze of Rips and Currents

Generated on 2024-09-12 12:01 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

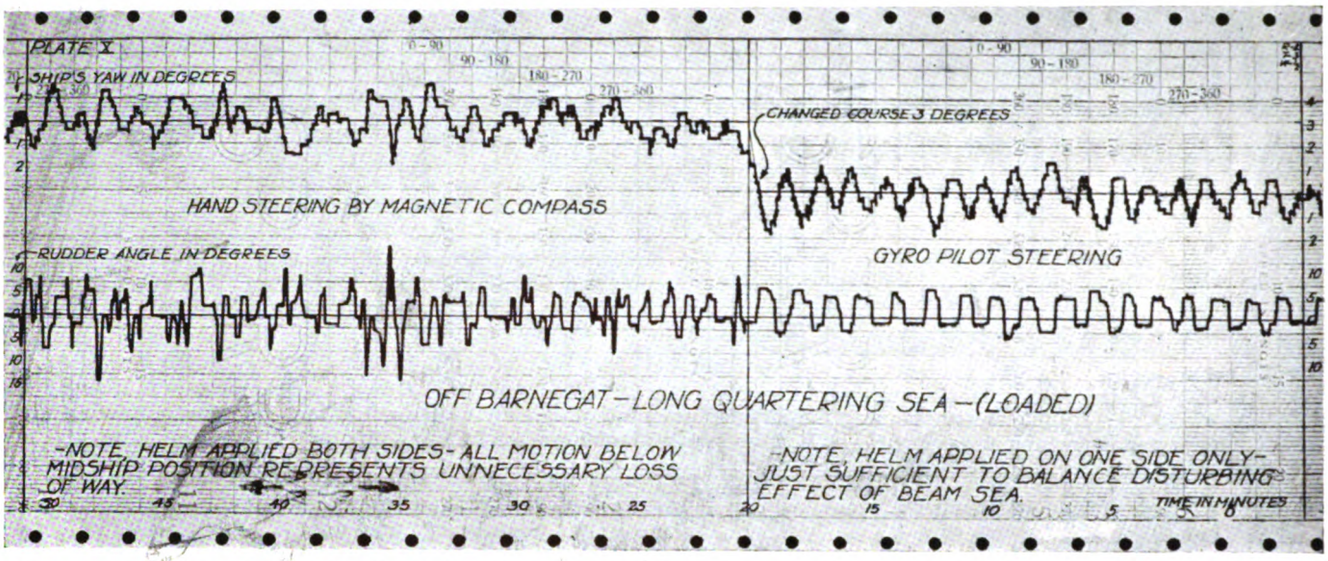


PLATE X
SHIP'S YAW IN DEGREES
HAND STEERING BY MAGNETIC COMPASS
CHANGED COURSE 3 DEGREES
GYRO PILOT STEERING
RUDDER ANGLE IN DEGREES
OFF BARNEGAT – LONG QUARTERING SEA – (LOADED)
NOTE, HELM APPLIED BOTH SIDES - ALL MOTION BELOW MIDSHIP POSITION REPRESENTS UNNECESSARY LOSS OF WAY.
NOTE, HELM APPLIED ON ONE SIDE ONLY - JUST SUFFICIENT TO BALANCE DISTURBING EFFECT OF BEAM SEA.
TIME IN MINUTES

Fig. 7.—Comparison Between Hand and Automatic Steering in a Beam Sea. All Helm Applied Below the Base Line Represents Loss of Headway

taining a steady angle, known as the "drift" angle, to the tangent of the circle.

Successive Stages of the Turn

It is instructive to follow the successive stages of the turn.

1. The first effect of helm is to throw the whole mass of the ship toward the side opposite to which it is desired to gain headway, this being due to the turning point at the start lying outside and forward of the ship.

2. The ship ranges ahead *along the line of her original course* for a distance approximately two to three ship lengths before she commences to gain much headway on the desired turn, as the momentum persists for a time and drives her along this line in spite of the forces which are turning her head away from it. Many collisions have been caused from too little allowance for this behavior.

3. The force tending to turn the ship's head finally overcomes the resistance to lateral displacement and the ship proceeds along the new course.

A ship thus turning with full rudder will suffer a great reduction in speed. The loss of headway will be found proportional to the rudder angle. This is the factor which can be translated into savings, if the rudder angle can be limited to a reasonable amount. Fig. 3 is a striking illustration of the advantages of very complete attainment of this condition. Here the ratio of rudder angle, automatic to hand steering, is approximately 7 to 17. The machine is observed to apply rudder only when needed. The quartermaster uses rudder nearly all the time and in too large quantities in his effort to sense the next motion of the ship. The retardation of the ship by continual applications of 15 to 20 degrees rudder, as seen in the hand steered record, is very marked and should be improved.

Improving Steering in Bad Weather

Among the first questions asked is, "Can steering be improved in bad weather?" The answer to this appears in Fig. 8 where records taken on the *W. H. Tilford* during a series of heavy northeast gales are shown. A decided improvement over the best hand steering is shown to be possible. The maximum yaw noted when steering automatically is 7¼ degrees, as compared with 11 for hand steering. The rudder activity—a measure of the efficiency with which the ship is steered—is 2½ and 15 degree minutes respectively. It is thus seen that the present performance of hand steering is susceptible to decided and consistent improvement in foul and fair weather alike.

A theory of steering widely followed by seafaring men admits no loss of headway, or very little, when the ship yaws off the course, inasmuch as the turning is gradual and takes place normally. The loss of way is experienced when the helm is put down and the stern is forcibly thrown to one side or the other in order to return the ship to the course. This loss is, of course, always greatest when the helm is applied

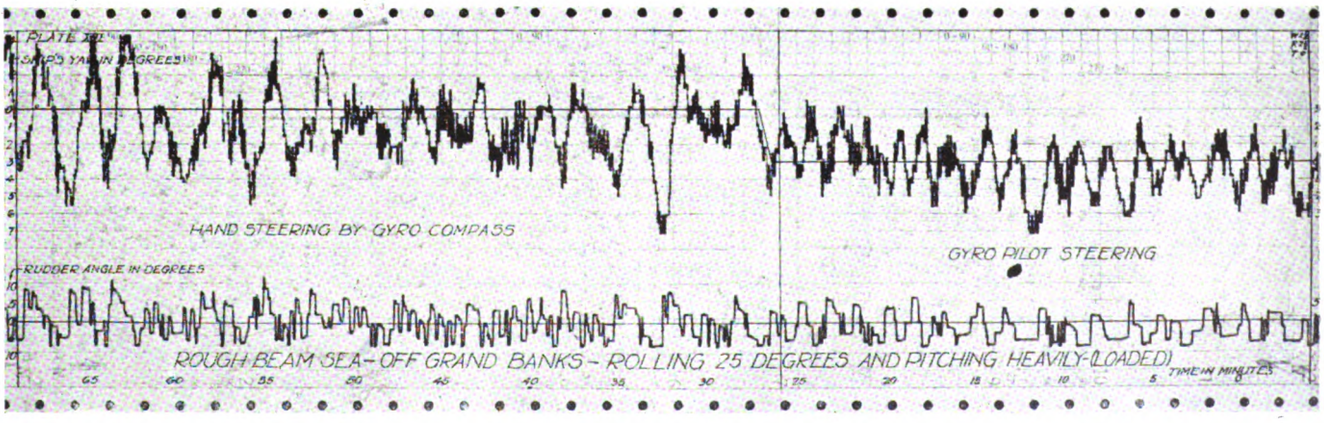


PLATE XI
HAND STEERING BY GYRO COMPASS
GYRO PILOT STEERING
RUDDER ANGLE IN DEGREES
ROUGH BEAM SEA – OFF GRAND BANKS – ROLLING 25 DEGREES AND PITCHING HEAVILY (LOADED)
TIME IN MINUTES

Fig. 8.—Continuous Record of Course and Rudder Angle Taken on Board the W. H. Tilford in a North Atlantic Gale. Automatic Steering on the Right, Hand Steering on the Left

Generated on 2024-09-12 12:02 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

heavily. For this reason many captains advocate permitting the ship to yaw 3 or 4 degrees and limit the corrective helm to small angles in order not to retard the ship's speed unnecessarily.

Loss Due to Broadside Effect

The loss of way due to rudder angle is small compared to the broadside effect (bad angle of attack) previously considered, being represented by the formula: $P = A\ V^2$ sine $X p$

where P = pressure in pounds.
A = area of rudder.
V = ship's speed plus 20 percent for slip.
X = rudder angle.
p = pressure of water at 1 knot speed = 3.19 square feet.

The loss, therefore, varies as the sine of the rudder angle, increasing rapidly with the angle, and may be measured directly in foot pounds for any given condition.

Loss Due to Surplus Distance Covered

The loss due to surplus distance covered when steering an angular course is also quite small for normal steering, being equal to $\frac{1}{\cos X}$, where X is equal to the yaw angle. It increases rapidly with the angle, however, and an average yaw angle of two points will result in a loss of 7.8 miles for every 100—a material figure.

A good quartermaster endeavors to sense the next motion of the ship. Being human, his judgment is often at fault and, if he guesses wrong in thus applying rudder before the ship has left the course, he builds up an oscillation instead of suppressing it. Any amount of records give proof of this procedure.

The speed at which the rudder is applied has an important bearing upon the limiting helm angles found necessary for steering. The two functions of steering, *i.e.*, (a) observation of the beginnings of yaw, and (b) quick application of the rudder, are thus seen to go hand in hand. Observations go to show that these cannot be too quick. This seems to be proved from the fact that the best steering and highest economy of ship performance are attained when these factors are practically instantaneous, thus being speeded up to a degree quite beyond human limitations and maintained consistently at this rate.

Scott-Still Engines for M. S. Dolius Prove Economical

Combined Steam and Oil Motor Requires 15 Percent Less Fuel Than the Normal Diesel Type

By Our Special London Correspondent

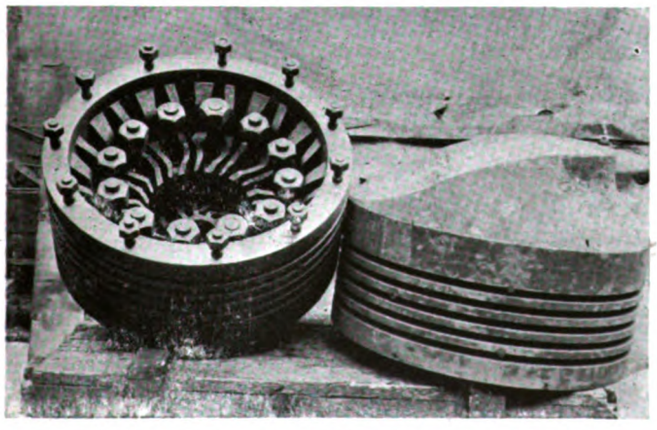
ALTHOUGH a great deal has been heard of the combined steam and oil engine known as the Still type during the past few years, no motor of this class has actually been built for installation in a large ship. The machinery has, however, now been completed for an 8,000-ton cargo vessel, the *Dolius*, for Messrs. Alfred Holt and Company, and the two Still engines which will be fitted have been subjected to trials that have afforded remarkable results and have aroused the very greatest interest among shipowners and engineers.

A fuel consumption of 0.35 pound per brake horsepower hour has been obtained, and as the usual amount of fuel required in a normal Diesel engine is between 0.4 and 0.42 pound per brake horsepower hour, it will be seen that, if the engine proves reliable and is not too expensive in initial cost, it may mark a distinct step forward in marine propelling machinery.

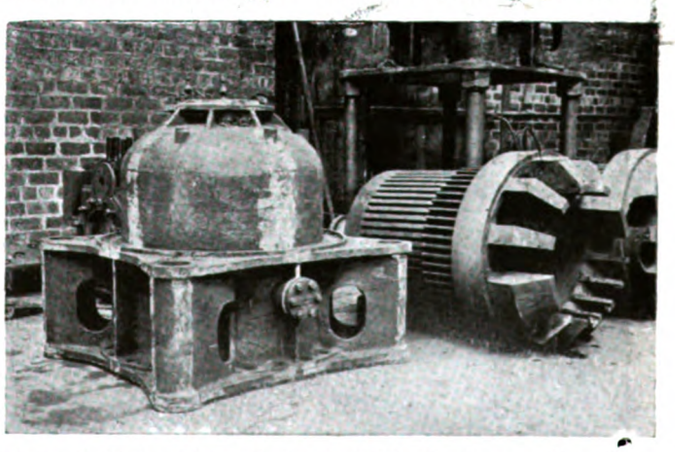
Each of the engines in the new ship will develop 1,250 brake horsepower in four cylinders, when running at 120 revolutions per minute, the cylinder bore and stroke being 22 inches and 36 inches respectively. On the combustion side of the cylinders, the engine operates as a two-stroke Diesel with port scavenging, but the bottoms of the cylinders are enclosed and steam is supplied below the pistons so that additional power is obtained in this way. This steam is obtained from the heat actually available in the engine and not from an external source.

Generation of Steam

In order to render this possible, the cylinder liner is very thin, being ribbed and strengthened by means of steel hoops. Owing to its thinness, the heat of combustion passes rapidly to the cooling water, which is raised to a temperature of 360 degrees F. The water boils and steam is given off, a mixture of steam and water passing from the cylinder jackets to a boiler of the Yarrow type. The steam then separates out at



Piston Heads



Right: Cylinder Liner. Left: Steel Mantle, Surrounding Liner

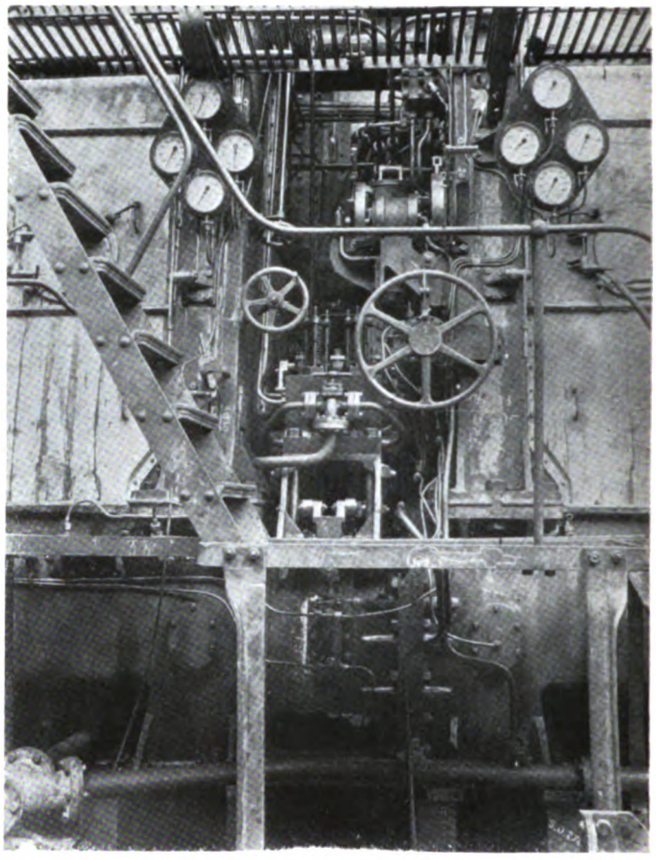
Generated on 2024-09-12 11:59 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

a pressure of 140 pounds per square inch, and it is this steam which is supplied to the under side of the pistons. The designers have made use of the maximum possible amount of heat and the exhaust gases, for instance, are passed through regenerators to heat the cooling water and finally used to heat the feed water, since a certain amount —about 50 pounds per hour—has to be added to the system to make up losses. The amount of steam generated per hour is 2,400 pounds, and this adds some 15 percent to the power of the engine.

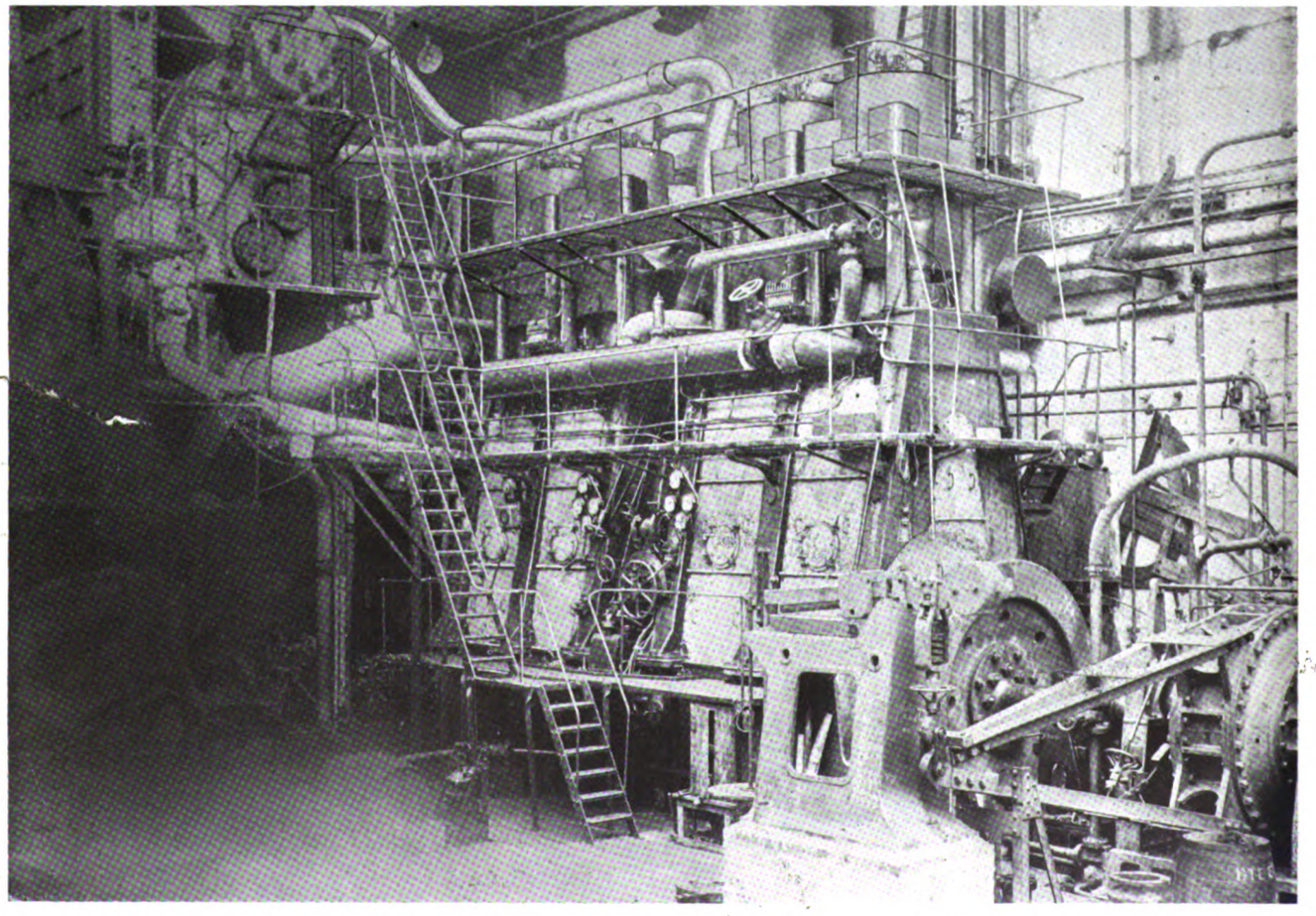
The steam is not delivered to all four cylinders at the same time, but is first supplied to one cylinder, which acts as a high pressure cylinder and is exhausted from it into the three other cylinders. From these, it passes to an exhaust steam turbine, running at 2,900 revolutions per minute driving a turbo blower, and only after leaving the turbine does it pass to the condenser, where a vacuum of about 28 inches is maintained.

AIR COMPRESSORS ELIMINATED

Steam is employed for maneuvering and reversing, and when this is needed the burner in the boiler is lighted to raise the necessary steam externally. Thus, no air starting valves are required on the engine, and, in fact, no compressed air is utilized for any purpose. Moreover, the fuel valve in each cylinder is automatic, so that cam gear and levers are not needed. Solid injection is employed and the four pumps, one for each cylinder, are driven from cams off the crankshaft. This is an unusual arrangement, but it obviates a good deal of gear and apparently gives satisfactory results, the oil pressure being 5,000 pounds per square inch. There are ahead and astern cams on the crankshaft, and the rollers operating the pump plungers are moved fore and aft by the reversing wheel when desired.

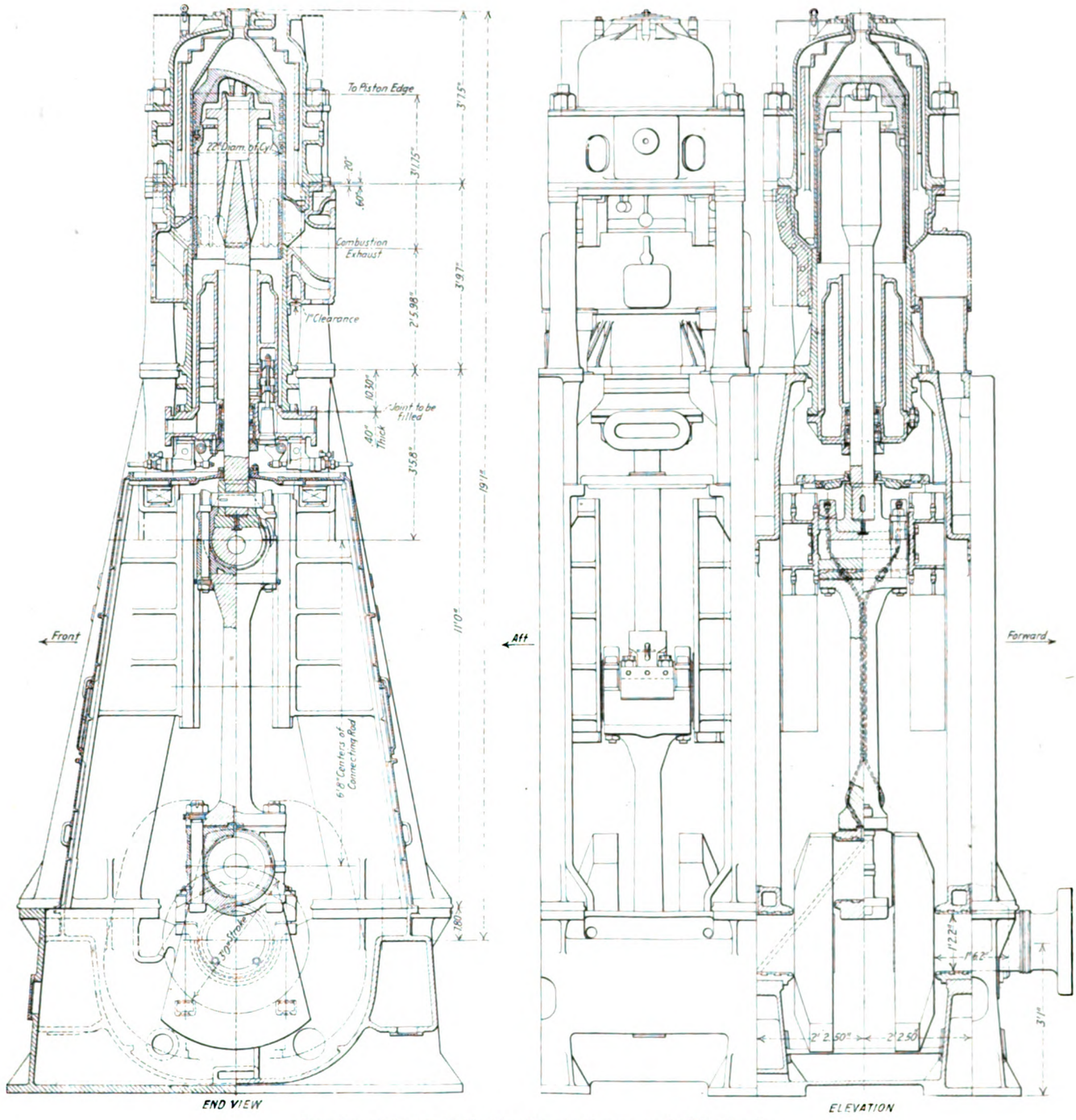


Control Station



1250 Brake Horsepower Scott-Still Combined Steam and Oil Engine

Generated on 2024-09-12 12:06 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN



Details of Scott-Still Combined Steam and Oil Engine

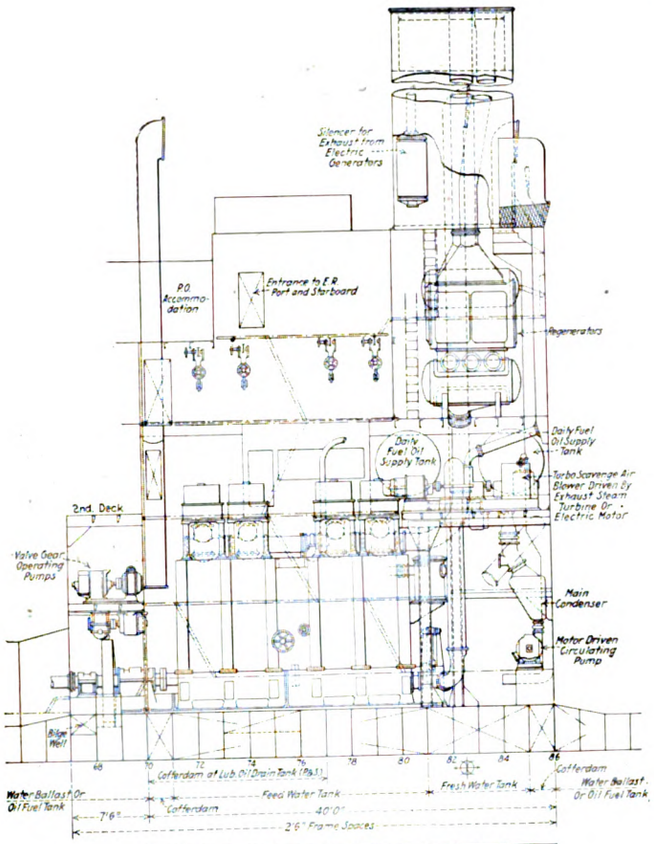
The steam valves in the various cylinders are not worked mechanically but by oil pressure, supplied from an oil pump, at 400 pounds per square inch. The admission for ahead or astern running is controlled through an air distributor, actuated by means of the starting wheel. When starting up, however, arrangements are made whereby the cut-off in the steam cylinders is about 90 percent, so as to give the necessary power, but immediately the engine has started the cut-off is diminished and only when the motor is running well on steam are the fuel pumps brought into operation.

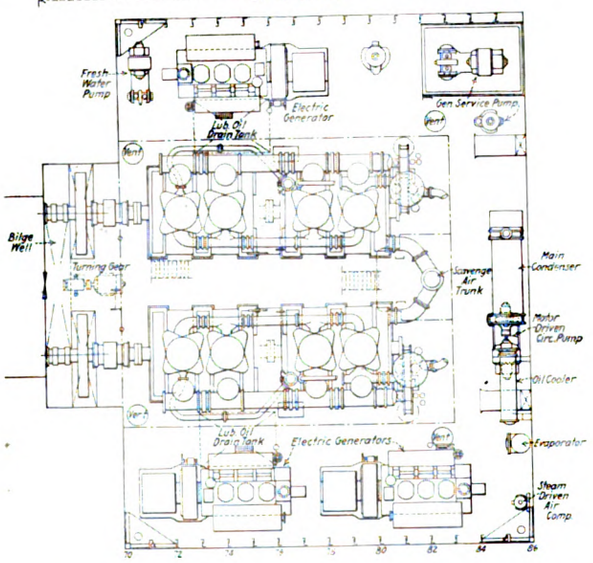
STEAM COOLS THE PISTONS

One of the advantages claimed with the Still system is that it is not necessary to use any cooling medium for the piston as the steam serves this purpose. It is naturally desired to avoid the presence of water in the cylinders and the steam, on admission to the valves, passes to the top of the piston below the crown, through holes in the piston rods. The under side of the piston is provided with a large number of spiral ribs over which the steam must flow, the result being to obtain a very good cooling effect for the piston while it is claimed that the steam itself actually becomes superheated.

The steam cylinder and the combustion cylinder are actually made separate, but the top of the former and the bottom of the latter are formed into fingers which mesh together so as to allow of a continuous cylinder for the passage of the piston. Over the combustion cylinder liner is placed a steel mantle which has to withstand the boiler pressure. Curiously enough, there is no cover, either in the mantle or the

Generated on 2024-09-12 12:02 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN



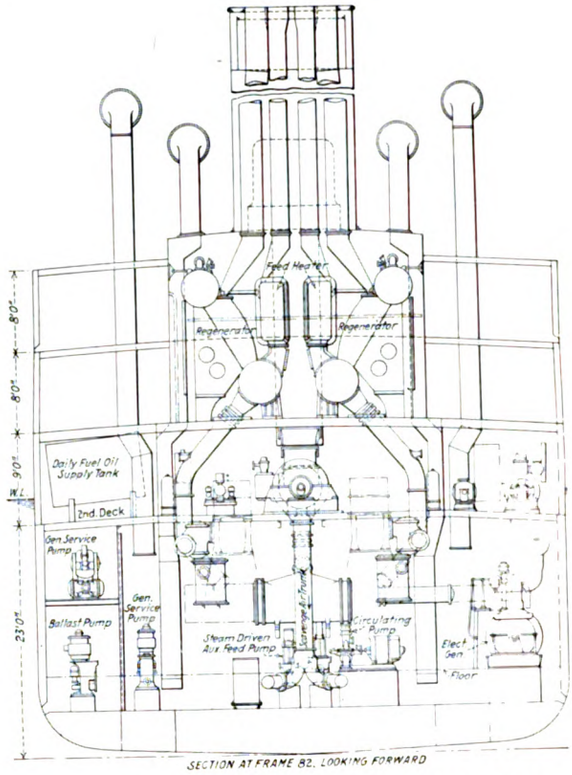


M. S. Dolius: Plan and Elevation of Machinery Space

liner, so that the work of taking out a piston is somewhat long as mantle and liner have to be removed before this can be effected.

Mean Effective Pressure Is Low

Owing to the high temperature of the cooling water, it is possible to have a very moderate compression pressure in the cylinder, and this amounts to only about 320 pounds per square inch, instead of 480 in a normal Diesel type. The mean effective pressure is also low, being about 77 pounds per square inch (referred to brake) while the steam mean effective pressure amounts to another 6½ pounds per square inch. The mechanical efficiency is high, being about 87½ percent, and the innumerable trials that have been carried out have shown consumption figures varying between 0.35



M. S. Dolius: Section Through Engine Room

and 0.36 pound of Diesel oil per brake horsepower hour. It is hoped still further to improve on this so as to be able to guarantee a total consumption in the ship of 0.35 pound per brake horsepower hour for all purposes, and not merely for the propelling machinery alone.

A very large auxiliary plant is to be installed on the new Still engined motorship, and three 150 brake horsepower Burmeister and Wain oil engines are fitted, each driving a 100-kilowatt dynamo. Electric winches are to be used and the steering gear, windlass and other accessories are all electrically driven.

William M. Campion, vice-president and general manager of the Garland Steamship Corporation, will take up his residence in San Francisco soon. He will take several men from the Garland staff in New York for the purpose of building up an organization on the coast.

(Photograph from Wide World Photos.)

The Navy's First Submarine to Carry an Aeroplane

The U. S. S. *S-1*, the first submarine built for the Navy to carry a plane. The plane is assembled on the deck of underwater craft preparatory to flight. The plane is carried on the top in a tank-like container and is dismounted, the wings and pontoons being placed inside separately from the fusilage of the aircraft.

Generated on 2024-09-12 12:04 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

How Will the Future Growth of Ships Affect Ports?*

By Commander John H. Walsh (C.C.), U.S.N. (Retired)

It is the object of this paper to set forth anew the growth that has occurred in the different types of ships in more recent years and to draw, as far as possible, reasonable conclusions as to the probable future growth of ships, as well as to point out that a further study of the causes leading to the growth of ships is urgently needed so that ports and inter-oceanic canals may know what to expect. The author discusses only the physical relations which exist between ports and ships, but points out incidentally that the sound administration of ports is a subject in which naval architects have not hitherto sufficiently concerned themselves.

ON what basis is the necessary coordination of future dimensions of ships and ports to be secured? It has been proposed in the past to limit the draft of merchant ships by governmental action. For example, at the Twelfth International Congress of Navigation held in Philadelphia in 1912, the following resolution was recommended for adoption by the Congress:

"1. It is desirable that a limit be set to the drafts of seagoing vessels.

"2. Government aid should not be extended to the building of seagoing vessels whose drafts exceed 32.2 feet.

"3. There should be an international agreement confining the maximum dimensions of seagoing vessels built or operated under government subvention, and these are tentatively suggested to be as follows:

Length	900 feet
Breadth	105 feet
Draft	32.2 feet

"4. Any maritime canal which has locks with a usable length of 1,000 feet, and a width of 110 feet and a depth of water at the sill of 35 feet, will fulfil every reasonable requirement of navigation."

This resolution was not passed by the Congress. What would have resulted if it had been passed and if the various governments had acted favorably on it is a question. What did actually occur was a striking development in the dimensions of ships, ports and canals throughout the world. It was somewhat checked as regards passenger ships by the war. Later it was checked as regards men-of-war by the limitation of naval armaments. And then came lean years for shipping and high money rates. But the growth of certain classes of ships continued and will, I believe, continue unless new elements are interjected into the situation. This growth is the result, at least in some degree, of economic law. Owners of cargo ships are seeking cheaper ways to carry ocean freights. Perishable commodities require more rapid transportation. Owners of passenger ships find large ships in demand. Designers of men-of-war are alert for new gains in fighting efficiency. The result sought by each has been secured through increasing the size of ships.

Thus a growth in ships has already occurred. And the Federal Government, which provides the channels, and the ports, which provide the port facilities, are equally in the dark as to what the requirements of the future will be. These

*Paper read before the Society of Naval Architects and Marine Engineers, New York, November, 1923.

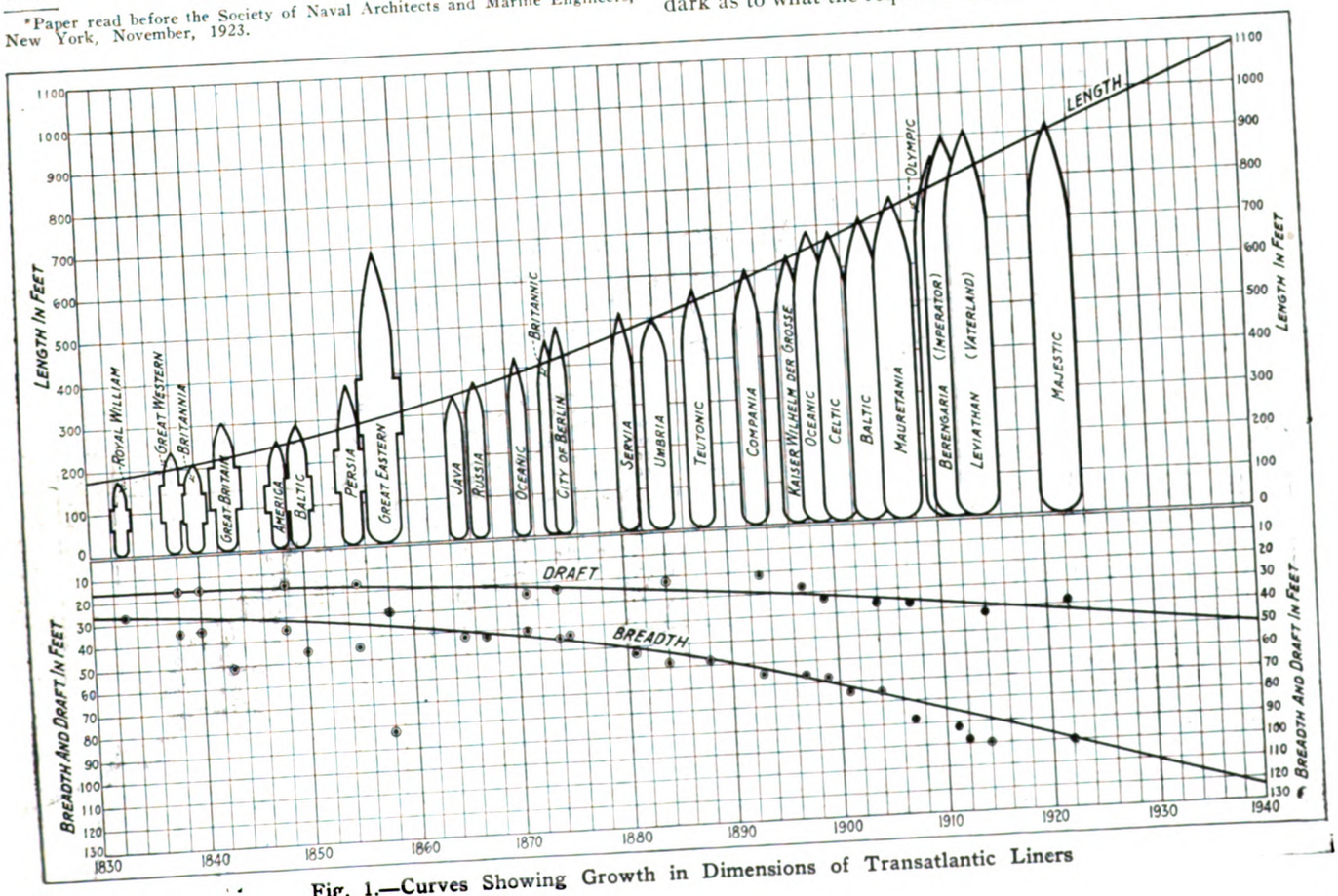


Fig. 1.—Curves Showing Growth in Dimensions of Transatlantic Liners

Generated on 2024-09-12 12:14 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Generated on 2024-09-12 12:18 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google

Digitized by Google

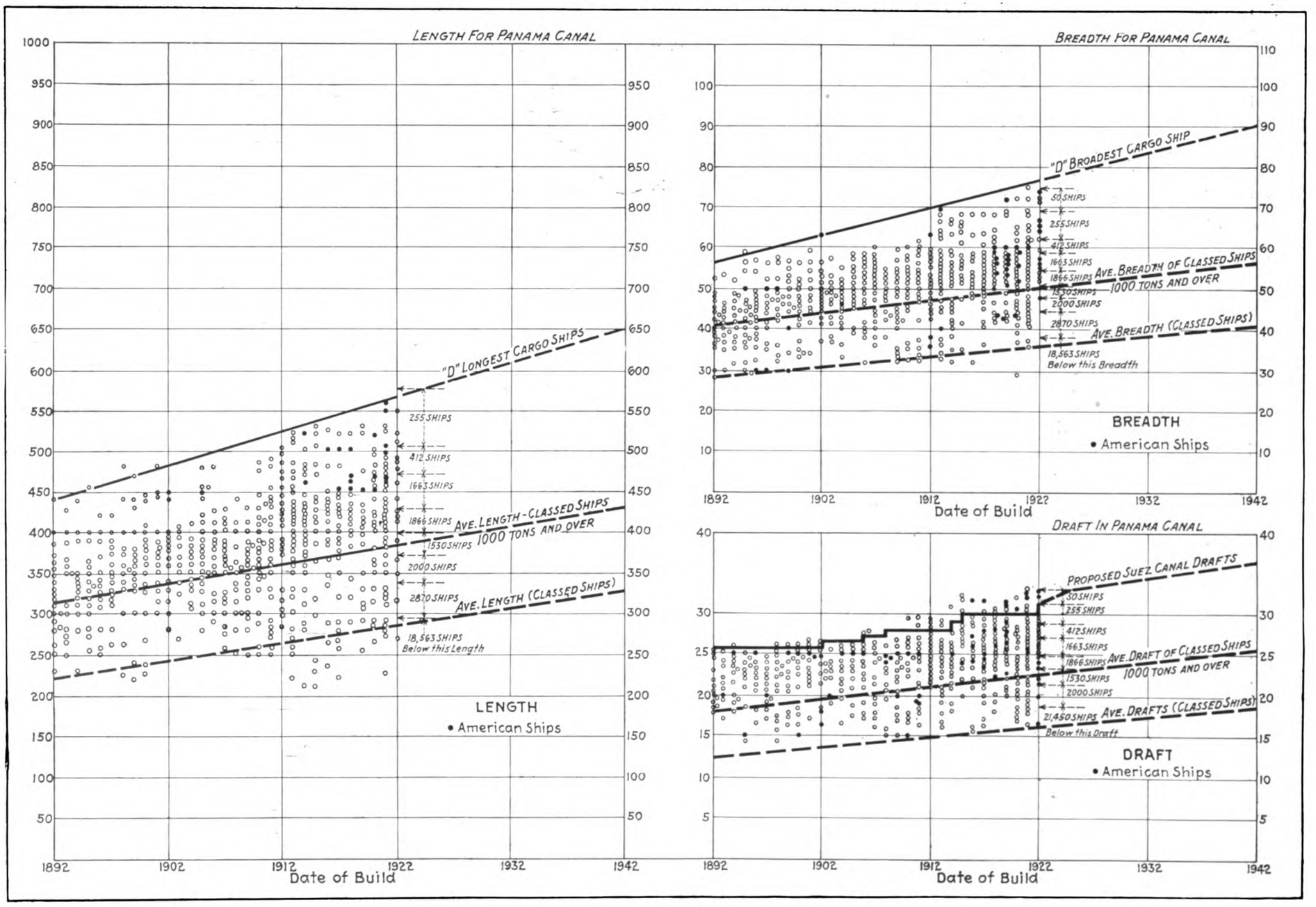


Fig. 2.—Curves Showing Growth in Dimensions of Cargo Ships

Original from UNIVERSITY OF MICHIGAN

agencies, of course, desire to know where it will all end. Their expense is enormous. They know they must go ahead if the growth is logical and necessary. But is the growth to be endless? They hope not. However, even the knowledge that growth in size will be endless would in itself be valuable information. But is it, indeed, to be endless?

There has been a feeling in some quarters that, in the long run, ships would be limited in growth by the accommodation of the ports. Is this true? It is becoming clear, I think, that it is not true. Ships will not be arbitrarily limited by ports. I doubt if you could so limit them permanently even by international agreement if the laws of economics demanded expansion. And neither will ships permanently be limited in dimensions by the canals, unless the canals are right about it. On the contrary, facilities must, within reasonable limits, be developed to conform to the demands of ships. That does not mean that ships may make unlimited demands on ports and canals and have them honored, but it does mean that reasonable demands have been and will be honored. It does mean that the problem must be looked at as a whole.

If each shipowner paid not only for the ship but paid as well for his share of harbor and port improvements, the ports would feel sure the owner would not ask too much. But that is not the case. The Government must deepen the channels; the port must enlarge its facilities. And the cost of these improvements is paid only in small part by the shipowner.

Since ships something over twenty years ago commenced their spectacular growth, ports and governments have been more and more preoccupied with the problems raised. Considering the magnitude and importance of these problems, and the power and wealth of the interests concerned, it seems strange that the problems should not have been, at once, subjected to intensive study. This study was perhaps delayed because of the number of interests involved and the unorganized state of certain of the interests. And it was delayed, no doubt, because the various interests are highly competitive among themselves. Governments, ports, owners, designers, builders—all are in competition. All have jealously guarded secrets. Each has its own method of handling affairs and his own point of view. And there is no coordinating force above them all.

CARGO SHIPS

I present herewith, with acknowledgment to the compiler, copies of a set of admirable curves presented by Mr. J. Foster King to the Thirteenth International Congress of Navigation held last July showing the growth in the dimensions of cargo ships during the last thirty years. Their steady growth in length, breadth and draft is clear. The maximum draft of such ships has, for a number of years, adhered pretty closely to the available depth of water in the Suez Canal. That limit has now, for the time, been removed by the deepening of that canal. The Canal is to be brought to a depth of more than 39 feet. The deepening of the Suez Canal was hastened by the completion of the Panama Canal, its rival, which has 40 feet of water. Remembering that large cargo ships have, in the past, followed closely the increasing dimensions in the Suez Canal, what are we now to conclude? Obviously shipowners have, in the past, found advantages in increasing the dimensions of cargo ships. On the face of the thing, I am unable to resist the conclusion that a further increase in the draft of cargo ships will probably occur. This increase will be minimized for the time being by the inevitable delay of the ports in adopting the standard of depth already accepted by the two great interoceanic canals. And it is doubtful if cargo ships will ever need to utilize fully the new depth of the canals. But all ports, as far as they may reasonably do so, will conform to the new standards on penalty of losing trade to competitive ports. A new standard is thus being forced on the cargo ports and on the canals of the world. This increase in the depth of ports will cost large sums of money, but even small unit reductions in the cost of carrying the water-borne freights of the world will, in the aggregate, result in such large economies that great expenditures can be justified. And the constantly growing cargo business of the world will, in time, obviously justify not only larger and larger sums for port improvements but will also make it possible for larger and larger cargo ships to obtain full cargoes.

And here let me invite your attention to the remarkable paper presented to the Thirteenth International Congress of Navigation by Sir John Biles. In this paper the author investigates the "problem of the most suitable dimensions for cargo-carrying ships." From his investigations he draws certain interesting conclusions as to the most suitable dimensions of cargo ships for certain purposes. These conclusions are limited, to be true, in their application, but what is even more interesting than his conclusions is his method of attacking the problem. To those who are charged with the responsibility of creating harbors and port facilities for the future, his method seems indeed far more important than his limited conclusions. He has laid down a general method of attacking the problem of the dimensions of cargo ships. It seems probable that if data which now exist in various organizations could be assembled, Sir John Biles' investigations could be continued until we knew with some degree of certainty what the cargo ships of the future are likely to be as regards dimensions. And this is just the information ports, governments and canals would like to have long in advance of the day when ship constructors act on the information.

Sir John Biles' curves show that economy cannot be endlessly secured by increasing the size of cargo ships. He shows that it is only comparatively fast cargo ships on long runs which need to be large. He shows also that it is not only necessary to have a quick turn around for fast ships, as we all know, but that one can say with fair accuracy how much extra we can afford to spend in equipment and for labor to get "turn around" for some ship not yet in existence. This, too, is information the port should have. It appears, thus, that you gentlemen who build, design and operate ships are about to find out something about your business of as much importance to ports and canals as to yourselves. And perhaps the most welcome fact Sir John Biles has established is that there is, as far as cargo ships are concerned, a finality to the necessary expansion of harbors and canals.

PASSENGER SHIPS

Let us now consider the case of the passenger ship. It is a very different case from that of the cargo ship.

Fig. 1 shows a diagram and curve of growth of the largest liners on the North Atlantic. It shows the steady, rapid, spectacular, ever-astonishing growth of these ships. I have ventured to continue these curves to the year 1940, not because I make the definite prophecy that dimensions as great as those shown on these curves will be achieved by that date, but to indicate where we shall arrive if we continue at the present rate. The dimensions from curve for 1940 are: Length, 1,090 feet; breadth, 122 feet; depth, 50 feet.

In the many papers discussing the growing dimensions of passenger ships which were presented to the Thirteenth International Congress of Navigation, it appeared to me little hope was held out to the perturbed Port Authorities that the period of growth was finished. The official opinion of the Congress was indeed that growth would continue.

Thinking further on the passenger ship situation, it appears probable that similar causes to those which produced the spectacular growth of vessels on the so-called Atlantic Ferry are operating in less degree on other passenger routes. If that is true, we must eventually see a great growth in the size of the vessels in the lines connecting North America

Generated on 2024-09-12 12:01 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

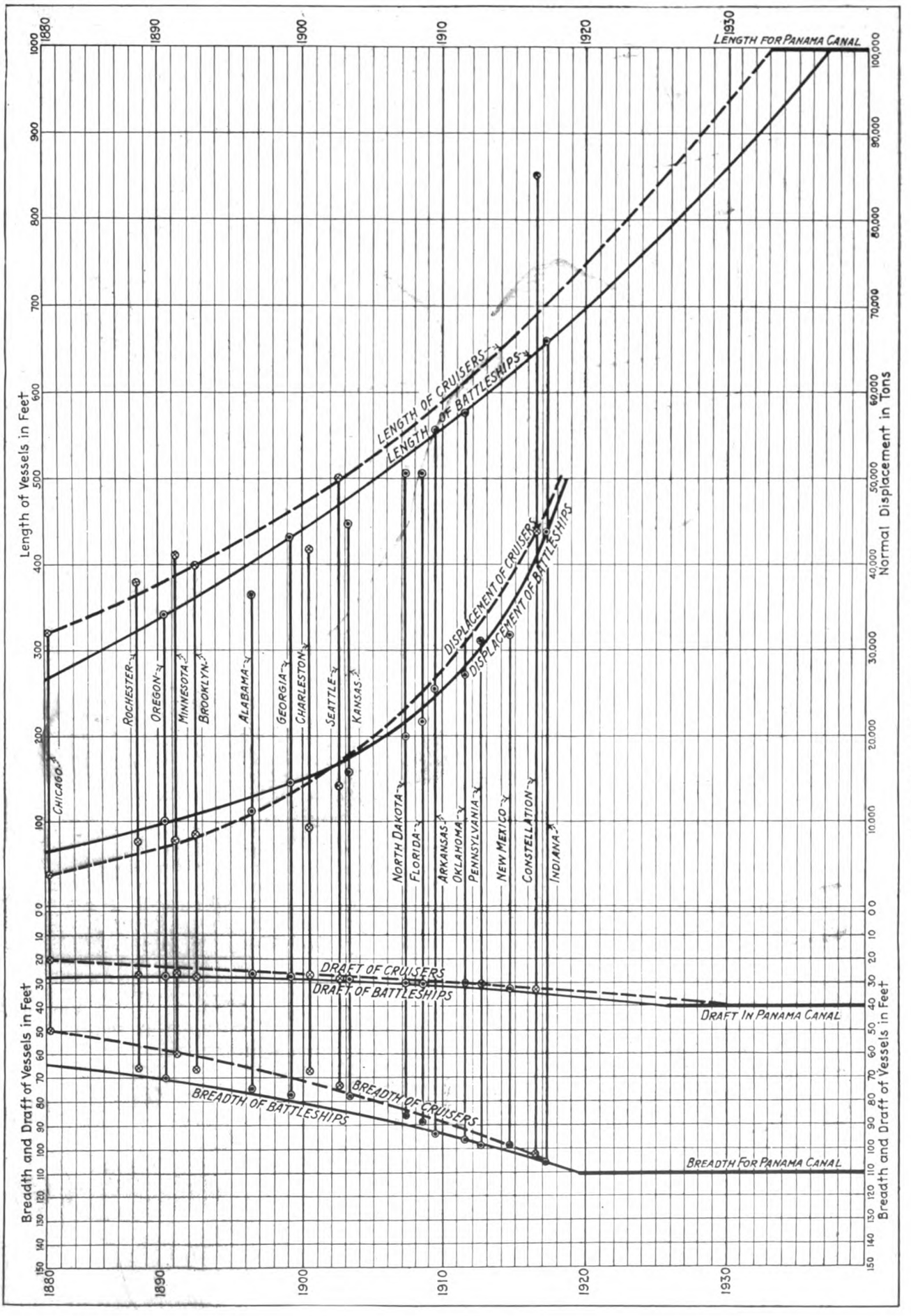


Fig. 3.—Curves Showing Growth of Naval Vessels

Generated on 2024-09-12 12:02 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

and Europe with the other continents. This growth is indeed already under way. The problems of accommodating the great ships of the North Atlantic will eventually become the problems of ports in many parts of the world. How far, may we ask again, is this growth of passenger ships to continue? Is there any limit to it? Is there any alternative to the particularly terrifying increase in draft? Can increasing the beam and the length of ships, as we have done on the Great Lake freighters and on our new shallow draft scout cruisers, be made a satisfactory substitute for increasing the draft? We have had contradictory answers from eminent naval architects. What are the facts?

Obviously the problem of the passenger ship is different from that of the cargo ship. Cargo, speaking generally, seeks cheap transportation. It will perhaps seek a certain degree of speed, too, in time. But passenger traffic seeks speed and comfort now and at once. And the companies which build the passenger ships are doubtless well able to appreciate the advantages in advertisement which come from possessing large ships. It does seem to me, however, that the cost of transporting passengers on various types of ships must give us some clue to the probable ultimate development of these ships. I should like to see the cost of carrying passengers developed in some striking manner similar to that adopted by Sir John Biles in his analysis of the dimensions of cargo ships. I should like to see elicited the ideas of builders who have built the biggest ships and operators who have run them as to the practical difficulties incident to increasing size.

The money which a port can afford to spend to accommodate the largest passenger ships is not easily to be determined. True, there are only a few of these big ships. But it will not do to appraise their value to a port by their number or carrying power. Great ships have a power to draw trade for ports as well as for lines. Perhaps we shall never be able to say what a great passenger liner is worth. Still, let us have as many facts as we can get. Even though there are imponderable elements in the problem, let us have as many facts as possible to aid our judgment; and let us have the best minds of all the maritime professions consider if an alternative to the ever-increasing draft cannot be found.

MEN-OF-WAR

I have prepared also for your consideration curves showing the growth in dimensions of American men-of-war during the last thirty-five years. You are all familiar with this growth. These curves, by a stroke of diplomacy, become at least temporarily largely academic in their interest. You know that the present dimensions of the Panama Canal were fixed with regard to the probable future dimensions of fighting ships. You know, too, that there is now a limitation by international agreement on the size of armed ships and there is a holiday in building. The limitation promises results in the dimensions of fighting ships very satisfactory to those who provide channels, harbors, dry docks and canals. Fighting ships have at least temporarily and perhaps permanently disappeared as a runner up of the dimensions of canals and ports. Indeed, the stabilizing of the dimensions of naval ships may also assist us to stabilize the great canals of the world, and they, in turn, will influence the ports and the merchant ships. In the race of increased dimensions the passenger liners now remain in the star part with the cargo ship and man-of-war only poor seconds.

But leaving aside the international agreement concerning armaments, where would purely technical and operating conditions have carried the growth of warships? It may be that, beyond a certain point, offensive and defensive power and mobility are better secured by a multiplicity of units rather than by increasing the size of units. But where is that point? What is the point in dimensions to which great military ships would be approaching if it were not for our happy international agreement? Is it possible to say? I am afraid it is not possible to answer this question very definitely. I am afraid that our answer to the cargo-ship problem is the most definite we shall get for any ship. I suspect that in common sense the answer to the question of the ultimate dimensions of passenger ships may have eventually to be decided, at least to some degree, by international agreement. Perhaps the dimension to which men-of-war would tend, if designers were unrestrained by agreements and the dimensions of ports and canals, is still more indefinite.

A SUGGESTION

I think anyone who considers the present situation of the relation between ports and ships will agree that this important matter of the dimensions of ships should be subjected to an exhaustive study. The main difficulty seems to be that the necessary information is now in many hands, and much of it is confidential. All necessary information should be placed in the hands of one group of persons. Sir John Biles has, in England, suggested the endowment of a chair to study the dimensions of ships. Our method of solving the problem should perhaps be different. In this country it happens that all the skill, knowledge and judgment necessary to the solution of our problems lies ready to hand in the various departments of the Government. Our Shipping Board has reliable information as to the cost of building and operating every type of merchant ship. And it has information as to the cost of handling cargo. Our Navy Department has all the necessary information as to fighting ships of every sort and a highly developed ship-design organization. The War Department has full information as to the cost of harbor works, ship channels, canals and port facilities. A suitable reconciling force or power with the duty to collect and study the information available is still lacking. I am satisfied that the results would be of the utmost value to the Federal Government itself; and the ports would gain great advantage from such information. My own studies, far from being comprehensive as they are, have led me to many valuable conclusions concerning our own port of New Orleans, not only as regards the growing total of cargo which we must handle year by year in the future, but as to the reasons why cargo and passenger ships are knocking at our door for deeper channels and larger port facilities. Above all else, these studies have shown me how much we all need yet to know about the probable future growth of ships.

Another British Shipbuilding Company in Financial Straits

THE financial bombshell put up by Workman, Clark and Company, Ltd., Belfast, has been eclipsed by an associated concern, the Northumberland Shipbuilding Company, Ltd., of Howdon-on-Tyne, whose directors' report and accounts covering the three years ending June 30, 1923, are now issued in one document. They disclose a debit balance at the date mentioned of no less than £390,850, and, furthermore, the auditors of the company, after stating that about eight and a half millions sterling of "investments" figuring in the company's books are really worth a "negligible" sum, add that, since the end of the financial year, namely June 30, last, the holding of the company in the Fairfield Shipbuilding and Engineering Company, Ltd., of Glasgow, included in the investments, has been sold at a loss of £779,573. The United Kingdom shipping and shipbuilding world awaits with interest and trepidation the outcome of the protracted investigation which will assuredly take place into the whole operation of the Northumberland Shipbuilding Company, and its companion in misfortune, Workman, Clark and Company, Ltd. It is to be hoped that similar conditions will not develop elsewhere.

Generated on 2024-09-12 12:00 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Launching Lubricating Materials

By Horace Holden Thayer*

Continuation of a series of articles containing information regarding shipbuilding materials and their uses that is not readily obtainable from shipbuilding handbooks and other generally available sources. The articles are not intended to be a complete exposition of the subject but will be found to contain items of value to the various classes of workers in this field who have to deal with these materials from the materials point of view.

THE importance of having a ship launching take place as scheduled does not require explanation either from the point of view of dollars and cents or that of those engaged in the launching ceremony; and there is also the possibility of damage to a vessel stuck on the ways. So great care should be, and usually is, taken in the selection of proper materials to lubricate the ways. The shipbuilder will use materials with which he and others have had success and will learn from experience what modifications are necessary or desirable to suit different slopes of the ways, varying loads and varying conditions of heat and cold. The materials must be such that there will be no possibility of their displacement by the weight and heat due to the friction to the extent of allowing the ways to come together, wood to wood; and the slip coat should have a very low coefficient of friction.

The principal lubricating materials are launching grease, of which there are a number of proprietary brands available, petroleum stearine and beef tallow. The launching grease, like the stearine, is a petroleum compound. Tallow is one of the oldest lubricants for launching ways now in common use and is produced from the fat of steers and sheep, mainly the former. It is marketed for this service as prime tallow or prime inedible tallow. There is a corresponding animal product made from the fat of hogs, that is sold as stearine or oleo stearine, and is used to some extent by shipbuilders for launching purposes; but it need be considered only as a form of tallow. When stearine is referred to hereafter it will be the petroleum stearine that is meant. The tallow and stearine have to be melted and applied hot, while the launching grease is spread on by hand just as it comes from the container. After the vessel is launched the lubricating materials are salvaged for later use or sale, according to the practice of the particular shipyard.

How the Navy Tests Launching Grease

In order to determine which of the proprietary brands of launching grease could be safely approved for use, the United States Navy Department adopted a system of testing out the different brands offered. It constructed model ways 14 feet long and 14 inches wide with a slope of 11/16 inch to the foot, and placed upon these ways a sliding block with a bearing surface of 12 inches by 24 inches and heights of 10⅝ inches and 12 inches respectively at the two ends. Stearine is painted on the ways and lower surface of the sliding block to a thickness of 1/16 inch. A layer of the grease under test is placed over the stearine on the ways. After carefully placing the sliding block on the greased ways, a weight of 8,760 pounds is placed on top of the block. A rope, leading from the block around a samson post, is gradually payed out so that the strain might come easily on the dynamometer. When the block comes to rest, a reading is taken and the coefficient of friction computed. This procedure is repeated with increments of about 500 pounds until a maximum weight of 10,908 pounds is carried by the grease. Effort is made to obtain readings at pressures between 2 and 3 tons per square foot—average launching practice. In order to determine whether the grease has sufficient body to stand up under the weight, readings are taken at the four corners of the block before, and after, the initial weight of 8,760 pounds is placed on the block.

The formula used in computing the coefficient of friction is:

$$f = \frac{W \sin \theta - F}{W \cos \theta}$$

F = dynamometer reading.
W = weight of sliding ways plus applied weight.
f = coefficient of friction.
$F + f\ W \cos \theta = W \sin \theta$.

As a result of these tests the Navy Department has an approved list of launching greases, which is subject to change from time to time as additional brands are tested or in case any of those tested prove unsatisfactory in actual service. The present list is as follows:

Atlas,	Swan & Finch
Universal No. 3½,	Warren Lubricant Company
Keystone,	Keystone Lubricating Company
Matchless,	Standard Oil Company, (Calif.)
Neptune,	Fiske Bros. Refining Company

The fact that a launching grease is on this list does not, however, necessarily mean that it is generally desirable, and on the other hand some very good brands may not have been submitted for test. In fact the launching grease in most general use by east coast shipbuilders for many years has comparatively recently been added to the list. A larger percentage of some greases than of others is recoverable for future use, and on this account an apparently expensive grease may prove less expensive than a cheaper one.

Use of Launching Lubricants

Shipyard practice in the use of launching lubricating materials shows wide variation on account of individual preference and development as well as on account of the beforementioned variations in governing conditions. Where small boats are to be launched good results are obtained with the use of launching grease alone. With somewhat larger vessels a coat of tallow applied to the ground ways with a slip coat of launching grease spread by hand on top of this is usual; and where the tallow is too soft for the weight to be taken care of, stearine or a mixture of stearine and tallow is usually used in place of the straight tallow. The same ship which would call for the use of straight stearine in summer might require something to soften up the stearine in winter. One shipyard has successfully launched a number of large cargo steamships using a mixture of tallow and castile soap.

A shipyard that has adopted the stearine and tallow launching grease method samples and tests by hand pressure the mixture of stearine and tallow until it is found to be what they consider the right hardness. It is then applied by brush coats, seven or eight to the top of the ground ways and two or three to the bottom of the sliding ways. This results in a coating about ¼ inch thick on the former and not over 1/16 inch thick on the latter. The slip coat of launching grease is put on just before launching, to an average thickness of about ¼ inch. They sell the recovered

*Member of the firm of Rossell & Thayer, naval architects and marine engineers, Philadelphia, Pa.

Generated on 2024-09-12 12:03 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

mixture, considering it undesirable for further use.

Another shipyard has adopted and has been using for some years the stearine-recovered material-launching grease method. They have become sufficiently expert to be able to flow the stearine and recovered material on. For large sized cargo vessels they use a stearine thickness of about 3/16 inch aft and 1/8 inch forward. On top of this they use the recovered material to a thickness of about 3/8 inch aft and 1/8 inch forward. The slip coat of launching grease averages about 1/4 inch thick. They do not coat the sliding ways. They do not use any tallow, feeling that a mixture of animal and mineral products is undesirable for use as well as if any of the recovered material is to be sold. If it is necessary to soften the stearine in very cold weather, they add a little lubricating oil when melting it. In some cases in cold weather they will shoot a little lubricating oil on to the coating after it has been applied to the ways. As the stearine coating will crack in cold weather they flow on several thin layers at such times rather than one thick layer. The recovered material is melted in large containers and drawn off from the top, thus freeing it from the dirt, that settles to the bottom. It is kept in barrels that are marked for identification, and samples of each lot are also kept and examined when the time comes for use of the material.

Other examples might be given but these two are sufficient to illustrate good practice. The stearine and tallow-launching grease method is the prevalent one, but the practice of using tallow appears to be on the wane.

Marine Insurance Underwriters Get Data From Japan

Congestion at Japanese Ports—Adjustment Co-operative Examinations—White Sea to Be Closed—Collision Liability

By "Bordereaux"

AUTHORITATIVE word has at length come from Japan relative to the conditions there as they apply to American marine insurance. Briefly put, the situation at the leading Japanese ports is one of chaos, goods being piled up on the piers, anywhere and anyhow, as fast as they arrive. What is the status of the insurance of shipowners and cargo-owners under these circumstances? We shall endeavor to show, from the very latest intelligence, what those conditions are and how they affect insurance coverage.

Mr. Forest E. Single, of the New York admiralty firm of Bigham, Englar and Jones, who left for Japan a few weeks ago, armed with insurance company statistics as to values at risk there and with authority to gather data for the underwriters that might be of use in the preparation of claim settlements, arrived in due time and is making the Imperial Hotel, Tokio, his headquarters. Incidentally, it may be of interest to know that anyone desiring to get in touch with him may do so by making use of the cable address "Single, Tokio." Mr. Single, after looking the situation over, has communicated with his New York underwriting clients advising of what he has found. He states that at Yokohama in particular, and at all other Japanese ports in a lesser degree, such a state of chaos prevails that underwriters should limit the time at risk after discharge from a vessel and should not cover the risks of theft and pilferage on shore. It will be remembered that, following the earthquake, vessels sailing for Japan gave Yokohama a wide berth, but when it was learned that the navigating channels there were clear and when progress had been made in clearing away the debris, small cargoes were consigned for delivery at that port. Mr. Single further advises that the disruption of transportation facilities to the interior, in addition to the destruction of terminals at the port, has caused serious congestion, resulting in goods being left exposed to the weather and the depredations of the lawless.

It still remains a question as to whether the underwriters are going to comply with the suggestion of their representative and limit the time of coverage after discharge. Their decision carries with it an interpretation of their conception of the protection afforded by the "warehouse to warehouse" clause.

The all-important "warehouse" clause covers only during the ordinary course of transit; but precisely what constitutes such transit has always been a more or less mooted question. In the opinion of many underwriters "ordinary course of transit" limits their liability during delay on shore to not exceeding fifteen days, it being maintained that such a period represents a greater space of time than goods are ordinarily held at one place during transit.

In my judgment the term "ordinary course of transit" refers to the channels through which goods move, rather than to the element of time. Thus, if goods are detained at any point for considerable periods, through no act or fault of the shipper or consignee, or their agents, the insurance is still in effect, provided the goods have remained in the channels ordinarily used for the transit of the goods in question. Consequently, goods which, due to congestion at Yokohama, are held for unusual periods, and no laches on the part of the consignee being shown, would have their insurance remaining in force under the warehouse to warehouse clause, and the underwriters would be without the right to charge additional premium for delay.

Again, the question frequently arises as to whether the warehouse to warehouse clause covers goods while in appraisers' stores. This problem would appear to be solved by applying the test of the ordinary channel for the movement of goods from the warehouse of the shipper to that of the consignee or other warehouse at destination. Within the meaning of the clause, a warehouse is a place for the storage of goods. An appraiser's store is not a place for the storage of goods, but the ordinary channel for the movement of goods into a country.

Therefore it would seem that if the underwriters desire to limit the time at risk after discharge from the steamer at Yokohama it will be necessary for them to do so by specifically restricting their coverage after discharge to a certain number of days.

Cooperation in Adjustments

AN important innovation, of a cooperative character, is being perfected among New York marine underwriters with respect to the examination of adjustments. For a number of years this question has been under discussion, but no comprehensive plan has heretofore been devised by means of which a duplication of labor and a waste of time might be eliminated. During the past few months concerted action along this line has been considered by the Board of Underwriters of New York, with the result of the appointment

Generated on 2024-09-12 11:59 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

of a special committee for the examination of adjustments in which local underwriters are interested. This committee consists of A. B. Grant, of the F. H. Cauty office; J. S. Gilbertson, of Talbot, Bird and Company; W. D. Phillips, of Platt, Fuller and Company; H. E. Reed, of the Fireman's Fund, and H. A. Klahre, of Chubb and Son. They have perfected a plan which gives every promise of proving most helpful to underwriters and adjusters alike.

An agreement has been drafted and submitted to the members of the Board of Underwriters for their signatures, and the great majority of them have accepted it. By this plan, whenever any one of the subscribers desires an adjustment examined he is to notify the board and notices will accordingly be sent out to all members advising that this particular adjustment is under examination. By the terms of the agreement, subscribers are not bound to withhold settlement but it is nevertheless believed that no office will pay or pass for payment any adjustment until the report of the examination has been made. The committee intends to hold weekly meetings and has secured the cooperation of the United States Salvage Association in connection with the actual examination of the adjustments. After an adjustment has been examined the committee will render its formal report, after which underwriters interested will be free to take such course as they desire. No adverse report in any case will be issued until adjusters have had a full opportunity for discussing any particular case with the committee.

Adjusting offices are keenly interested in the plan and they will cooperate in every possible way to insure its success, particularly as it appears that this will be the means of securing prompter disposition of adjustments. Adjusters recognize that there may henceforth be a more searching examination, and yet they appreciate that, assuming that all local companies join in the agreement, they will have to make but one explanation of any questionable items rather than to discuss the same questions with a large number of individual offices.

At present the plan embraces simply the examination of general average adjustments, nor does it contemplate that adjustments drawn up on the Pacific Coast, which have been passed on by the San Francisco committee, nor adjustments in connection with lake or purely inland business, are to be dealt with. The committee has expressed the hope that requests for examination will be made in respect to all adjustments embraced in the plan.

White Sea to Be Closed

MARINE underwriters are not concealing their satisfaction over the report that the White Sea is to be entirely closed this winter because the ice-breakers have been sent to the Black Sea. There have been many claims in the past for ice damage to vessels bound for Archangel, not to mention losses on voyages to the ports of Northern Russia. During the days of the late war very heavy additional premiums were charged for vessels routed for Archangel that were unsuited for that trade; so much so, indeed, that the governments of some countries preferred assuming the risk rather than meeting the extra charge, and policies were suspended during the voyages. At present, however, rates are but moderate, and many underwriters have expressed a willingness to do without the White Sea business rather than assume its hazards at unremunerative rates.

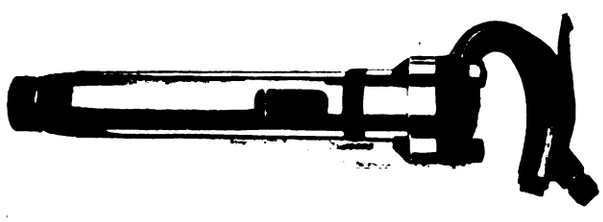
Collision Liability

UNDERWRITERS' liability for collision damage is involved in the following court case: When a vessel has drifted from her moorings she is liable for damage consequent thereon, unless she can affirmatively show that the drifting resulted from inevitable accident or *vis major*, which could not have been prevented by human skill and precaution or the proper display of nautical skill. It is the duty of the tug master, as each barge or flotilla of moored barges is made fast to a flotilla of moored barges, to see that they are sufficiently made fast so as to hold the entire flotilla, and when another boat is added it is the duty of the tug master to see that the fastenings are sufficient to hold the then complete flotilla against barges of other owners; because another boat, in this instance, was hung up outside the flotilla, the tug's owner was held liable.

New Type Riveting Hammer

THE Ingersoll-Rand Company, New York, has developed and is now offering a new type of pneumatic riveting hammer with improved features, including bolted construction for holding the handle to the barrel, heavy section valve with liberal bearing surfaces; combination poppet and piston type throttle valve; power in excess of all ordinary requirements; low air consumption and easy operation.

The new style hammers are manufactured in three styles, A, B and C and are available in a complete range of sizes from a 5-inch to a 9-inch stroke. Each size can be purchased with any one of three types of barrels and with either out-



Ingersoll-Rand No. 8A Riveter with Outside Trigger Handle

side or inside trigger handles. The standard A type has a barrel machined to accommodate a rivet set clip only and is furnished on all orders which do not specify either a bridge type or retainer type barrel.

Three alloy steel bolts of substantial size, fitted with lock washers, hold the handle to the barrel. This is an exclusive feature of Ingersoll-Rand hammers, and enables them to be taken apart anywhere for inspection or cleaning with the aid of only a wrench.

The throttle valve (except on inside trigger handles) is a combination of the piston and poppet types, having the nicety of control of the piston valve and the freedom from leakage of the poppet type. The beveled seat will remain tight throughout the life of the tool, preventing leakage. The throttle lever or trigger is made in one piece from special heat treated spring steel and has a long bearing in the handle.

The valve is a sturdy sleeve made from special alloy steel. It has liberal bearing surfaces and its walls are free from holes or ports. It operates in a valve box of strong construction, located in the head of the barrel. The valve box is constructed with a solid end which enables it to be easily taken apart by the use of a piston for the removal of the valve, without recourse to the use of a screwdriver or similar instrument. This construction also insures a compression chamber in the valve box which cushions the piston on the return stroke and prevents its striking the handle. The handles are of high quality steel, drop forged to a shape that fits the hand and are sand blast finished to give a positive grip. Either outside or inside trigger handles can be furnished although the outside type is standard. The exhaust is through the side of the barrel near the handle and can be deflected in any direction desired by merely turning the deflector.

Generated on 2024-09-12 12:20 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Applications of Arc Welding to Ship Construction—VI

Results of Tests to Determine Strength of Welded Joints—Attitude of Classification Societies Towards Application of Electric Welding

By E. H. Ewertz*

THE cost given below is interesting for while it shows the cost of riveting to be slightly lower, the advantage of eliminating rivet holes in shell for the bilge keel in way of the oil tanks is very apparent and should make the owner of a tanker request all such parts to be welded, as should also be the case with many other parts of ships' details that require fastening in way of the oil tanks.

Riveting and Electric Welding Costs

Bilge Keel, Oil Barges.

H-2150, 51 *and* 52.

Actual Cost of Welding Bilge Keel, Port and Starboard, on Hull 2150.

216 hours welder's time at $0.82 per hour	$177.12
173 pounds 5/32-inch wire at $0.7¼ per pound	12.54
Total	$189.66

Amount of Welding:
360 feet 4 inches overhead welding.
362 feet 10 inches horizontal welding.

Actual Cost of Riveting Bilge Keel, Port and Starboard, Hull 2151 *and* 52.

Drilling and countersinking 892 ¾-inch holes at $3.60	$32.10
Punching—one puncher and three helpers, 8 hours each	18.08
Riveting 892 ¾-inch rivets at $0.06	53.52
Calking rolling heel	48.50
Countersinking bars	4.00
Cost of rivets	25.00
	$181.20
Total electric welding cost	$189.66
Total riveting cost	181.20
Difference in favor of riveting	$8.46

It is to be regretted that complete cost data are not available from plants having built all-welded ships, such as the ***Fullagar*** now in commission, and yet such data might not have been of any considerable value as work was performed largely under war conditions and also direct comparison with riveted ships might not have been obtainable.

Strength Tests of Welded Joints

The Electric Welding Committee of the Emergency Fleet Corporation had uniform samples submitted to them for test. These samples were made by both direct current and alternating current welding machines, and also many kinds of electrodes were used; the result obtained by the Bureau of Standards, Washington, D. C., from the test of these samples is shown in Table 24.

Another very complete test was made under the direction of Mr. W. T. Bonner, and this table (Table 25) is particularly of value as it gives tests for electric arc welded, oxyacetylene and riveted joints.

The Alloy Welding Processes, Ltd., of London, England, in order to obtain the approval of Lloyd's Register of Shipping, of their flux covered electrode, had a number of tests made of ship plates varying from ¼ to 1 inch in thickness, all butt welded, and without butt straps. In none of these samples did the weld metal exceed the thickness of the plate by more than 1/16th inch. Tables 26 to 31, inclusive, give results of these tests.

*General manager, Moore Plant, Bethlehem Shipbuilding Corporation, Ltd., Elizabeth, N. J.

The Quasi-Arc Company, Ltd., of London, England, have by test demonstrated the superiority of electric arc welding as compared with riveting and results of some of such tests are given below.

The data here given show such excellent results in favor of electric arc welding that even the most skeptical architects and engineers would have to admit the desirability of the use of this process in preference to that of continuing the construction of ships by the use of riveting, and that these and other data available have been favorably passed upon by our most conservative engineering societies is evident from the letter here given, received from Mr. Stevenson Taylor, president, American Bureau of Shipping, an organization deeply interested in the obtaining of the best possible results in connection with ship construction.

Letter from American Bureau of Shipping

My dear Mr. Ewertz:

I have your letter regarding your proposed paper on the application of electric welding to shipbuilding. I note therein that you desire a statement from me as to how far or what parts can be welded in accordance with the Rules of the American Bureau of Shipping, and in reply I will quote from our revised Rules as follows:

(1) "The Bureau, recognizing the advantages of welding by the electrical and oxyacetylene processes in connection with ship construction, approves in general its application to parts of the vessel which are not subjected to the principal structural stresses and where failure would not endanger the ship.

(2) "The Committee is also prepared to consider on its individual merits, and methods employed, any system of electric arc welding which may be submitted for more important work. With reference to electric welding the voltage, amperage and sizes of electrode in relation to work are to be submitted, approved and carefully observed.

(3) "Satisfactory proof must be given that the operators employed are thoroughly trained and efficient and the welding material used of a uniform and reliable quality. All welded joints are to be at least equal in strength to riveted joints as required by the Rules. The Bureau's Surveyors are to satisfy themselves by hammer and other tests that the work is satisfactory. They may require samples made under the same conditions as the work in hand, to test to destruction."

In connecting the different members of ship's structures together by welding along the edges of laps of plating and along toes and heels of shapes, it seems to be impractical to hold the different parts together, metal to metal, without the use of a large number of tack rivets. It therefore appears to me that it will be necessary to devise a method of welding the different members together under heavy pressure before a completely welded ship, without rivets, will be practicable.

This is a most interesting subject, and you will find this Bureau ready at all times to cooperate with builders in producing welded ships of adequate strength. Yours very truly,

American Bureau of Shipping,
Stevenson Taylor, President

Lloyd's Attitude Towards Electric Welding

Lloyd's Register of Shipping has studied the application of electric arc welding closely and has made numerous tests of welds as well as of electrodes. We are here reprinting a letter from Mr. J. F. French, chief surveyor of this society in the United States. We are also reprinting the results of tests, lists of parts that may be welded without restrictions and the rules governing the use of electric arc welding for strength members of a ship as well as for the all electric welded ship.

Generated on 2024-09-12 12:00 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Generated on 2024-09-12 12:05 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google

Table 24

U.S. SHIPPING BOARD
EMERGENCY FLEET CORPORATION
ELECTRIC WELDING COMMITTEE
PLATES TESTED BY DIVISION VII-1 AND VIII
BUREAU OF STANDARDS - WASHINGTON, D.C.

TEST OF PLATE MATERIAL						
1	2	3	4	5	6	7
TENSILE TEST			TORSION TEST		VIBRATION TEST	BENDING TEST
YIELD POINT IN LBS PER SQ IN.	ELONGATION IN 2 INCHES - %	ULTIMATE STRENGTH IN LBS PER SQ IN	ANGULAR DEGREES OF PLATE	TORQUE OF PLATE IN INCH RADIUS LBS	NO OF OSCILLATIONS OF PLATE	ANGULAR DEGREES OF PLATE
38400	31.5	64700	574	6048		O.K. FOR 180°

WELD															TENSILE TEST				TORSION TEST				VIBRATION TEST			BENDING TEST			
8	11	12	13	14	15	16	17	20	21	22	27	28	29	30	33	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
SERIAL NO. OF COMMITTEE	WELD OPERATION	POSITION FLAT	POSITION HORIZ.	POSITION VERTICAL	POSITION OVERHEAD	TYPE	RATE IN FT PER HOURS	ELECTRODE TYPE	ELECTRODE DIAMETER IN INCHES	ELECTRODE MANUFACTURER OF ELECTRODE	POWER CURRENT IN AMPERES A.C.	POWER CURRENT IN AMPERES D.C.	VOLTAGE OPEN CIRCUIT	VOLTAGE ARC	REMARKS ON WELD	YIELD POINT LBS PER SQ IN.	ELONG IN 2 IN PER CENT	ULTIMATE LBS PER SQ IN.		WELD ANGULAR DEGREES	RATIO IN PERCENT	WELD TORQUE IN IN LBS	RATIO IN PERCENT	CALCULATED FIBRE STRESS IN LBS PER SQ IN	NO OF OSCILLATIONS OF WELD	RATIO IN PERCENT	WELD ANGULAR DEGREES	RATIO IN PERCENT	TESTERS SERIAL NO.	REMARKS ON TEST
1	R.B	✓					3.33		.15625	Reebling		170-180	67-68	18-22	Each weld made in 1 run. Plates cleaned by sand blast.	38400	8.0	59800		443	77.2	5538	88.3				42			
2	"	✓					2.86		"	"		180-185	67-68	18-22	Each weld made in 1 run. Plates cleaned by sand blast.	39000	11.5	62800		486	80.8	5512	91.1				44			
3	G.D.W	✓					2.35	Am. Basic Annealed	"	Am. Steel & Wire		170-180	63	16-17		38300	13.0	65470	•											
																34300	5.0	50800		322	58.1	4728	78.1				34			
4	"	✓					3.64	"	.1875	"		160	63	15																
5							4.44		.15625	"		160-170	75	18-20	Each weld made in 2 runs.	35300	7.0	52280	•											
																35650	8.5	61100		308	53.9	4820	78.4				55			
6							4.80		"	"		160-170	75	18-20	Each weld made in 2 runs.															
7	T.C.T		✓				4.21		"	Reebling		140	60	16																
8	"		✓				4.00		"	"		140	60	16																
9A	Hines						4.00		"		460 60C YCLE		220	20																
9	S.E.P	✓					3.33	Tarzan	"	Westberg Mfg Co.		180	75	15-18																
10	A.C.C	✓					3.30	"	"	"		150	75	15-18																
11	H.W.S	✓					1.81		"	Reebling		140	37.5	18-22	Each plate welded with 2 runs on 1st side, 1 run on 2nd side															
12	"	✓					2.50		"	"		140	37.5	18-22	Each plate welded with 2 runs on 1st side, 1 run on 2nd side															
13	F.K	✓					3.52	Bonnard Welding Wire	"	S & W Co.		150-160	63	24-28																
14	"	✓					2.85	"	"	"		145-155	68	20-22																
15	D.B.T	✓					1.64	Coated	.156	Q.A.		90	110	35	Weld made in 2 runs.	43480	8.0	57940	•											
																	4.0	38400		281	45.5	4080	67.5				30			
16	"	✓					1.81	"	"	"		90	110	35	" " " "	40280	8.25	58740	•											
																38400	7.00	60290		441	71.8	4788	79.2				35			
17	J.M.M	✓					1.43	"	"	"	90		102	35	" " " "																
18	"	✓					1.81	"	"	"	90		102	35	" " " "	40280	11.0	61780	•											
																37600	6.0	54000		216	37.6	3900	64.5				65			
19	J.J						1.90	"	.125	E.A.C. & W.Co.	160 60 CYCLE		115	20-25	Weld made in 2 runs Current used 136 K.W. Hrs	37000	8.0	62200	•											
																37280	11.0	61800		320	55.8	4332	71.6				32			
20	"						1.48	Bare	.125	"	175 60C YCLE		125	15	Weld made in 2 runs Current used 18 K.W. Hrs.	42200	11.0	66480	•											
																42400	2.0	66780		425	74.0	5391	89.9				34			
21	T.T.						1.6		.134	Q.A.	105 25C YCLE		100	40	Input 38 K.W : 127 K.W Hrs	30700	5.0	48200														
22	J.J	✓					97	½ Coated	.125	E.A.C. & W.Co	160 25 CYCLE		100	20	Operator's first weld 6 min with 25 cycle and last operator 6 min	59000	9.0	68400	•											
																57180	6.0	50000		274	47.7	4596	78.0				78			
23	E.L.C	✓					2.10		"	Reebling		80-90	63	18-20	Time cleaning and slag and changing electrode Weld made	46440	5.0	57060	•	258	41.5	4340	71.7							
																37850	4.0	51900		249	43.4	4176	69.1							
24	J.W.F	✓					1.90		"	"		80-85	63	18-20	in 2 runs: there was considerable sputtering when welding but 25C YC					191	33.3	4296	71.0							
																41800	6.0	48400		148	25.8	3841	58.5	25000	38000		15			
25	"	✓					3.20		.15625	"	136 60C YCLE		115	18-20		44700	4.0	47800	•											
																35300	3.5	43700		245	47.2	4128	69.2				28			
26	"	✓					2.66		.125	"	94 60C YCLE		230	17						101	17.6	3472	57.4							
																	2.0	34800		108	18.8	3177	52.5	25000	1123/170		13			
27	M.K.B	✓					2.86		"	"		110	78	20-22		31100	7.0	48200	•											
																30690	8.0	45800		465	81.1	4660	77.2				42			
28	"	✓					2.66		"	"		110	78	20-22																
31	Beadle	✓					3.84		.166	Reebling		150		20	Welded 1 run each side	38500	8.0	60980		518	90.8	6288	104.8							Fracture 32° from Center
																				450	78.4	5958	99.8							
32	"	✓					3.12		"	"		150		20	Welded 2 runs each side.					490	85.4	5388	92.1	25000	1278/170		14			

Note: Columns 9, 10, 18, 19, 23, 24, 25, 26, 31, 32, 34, 35, 36, 37 omitted due to lack of data.

Note: Yield Point from Beam Drop.
Weld not machined marked •

Fr. Curtis

Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Table 25.—Tabulation of the Results of Tests Carried Out at the United States Bureau of Standards, Washington, D. C., Under the Direction of Wm. T. Bonner, New York, January and February, 1917, to Determine the Relative Efficiency of Various Types of Jointures for Ship's Plating.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
SERIAL NO OF TEST	DESCRIPTION OF FABRICATED SAMPLES TYPE DESIGN	SAMPLE SYMBOL	SAMPLE NO	CROSS SECTION WIDTH OF PLATE	CROSS SECTION THICKNESS OF PLATE	CROSS SECTION AREA	DESCRIPTION OF PLATE USED IDENTIFICATION NO	GRAIN SYMBOL	AVERAGE TS OF TESTED COUPONS	TOTAL ULTIMATE STRENGTH UNREDUCED PLATE CALCULATED	TOTAL ULTIMATE STRENGTH JOINT-B ACTUAL	TEST OBSERVATIONS PERCENTAGE B/A	REMARKS CHARACTER OF BREAK ETC
3	CALKED	A	1	232	234	.90	.2106	02		58770	123780	63300	51 10 %	COUNTERSUNK RIVET HEADS PULLED THROUGH PLATE
49		A	2	242	234	.916	.2202	02		58770	129412	71000	54 10	2 CONE HEADS PARTLY TORN OFF SHANK
22	SINGLE LAP	A	3	24	247	.90	.2223	02		58770	130646	71000	54 3/4	ALL C & H. HDS PULLED THRU IBIS PARTLY SHEARED
34	RIVETED	A A	1	29 1/2	300	.93	27.9	07		58600	155333	77600	48 10	ALL RIVETS SHEARED OFF BETWEEN PLATES
48	LLOYDS	A A	3	30	293	.916	2.655	07		58600	155583	81000	52 10	ALL RIVETS SHEARED OFF HEADS AND TO FULL THRU
AVERAGE										58700	139550	73400	52 3/4 10	
12		B	1	252	245	.93/32	2230	04		58000	129340	103000	79 5/8 10	PLATE BROKE & RIVETS SHEARED OFF ALONG CENTER LINE OF RIVETS
13		B	2	254	245	.94	2220	04		58000	128760	97200	75 5/8 10	SAME RESULT AS B-1 IN TEST 12
25		B	3	202	250	.93/8	2200	04		58000	131428	99400	75 5/8 10	12
AVERAGE										58000	129840	99866	76 10	
10		C	1	244	247	.93/32	2146	03		56800	121893	80700	71 10	PLATE BROKE ALONG LINE OF RIVETS
14		C	2	25	247	.92	2223	03		56800	125928	89200	71 10	PLATE BROKE THROUGH CENTERS OF RIVETS 1 & 4
51	LLOYDS	C	4	25	244	.85/8	2181	03		56800	123880	86900	70 10	ONE CONE HEAD AND ONE C.S. HEAD PULLED THRU
8	SINGLE LAP	C C	1	294	294	.93/4	2628	07		58600	154000	103200	67	C.S. HEADS SAT. 283 PULLED THRU PLATE
47	JOINT WITH	C C	2	293/4	293	.90	2655	07		58600	155589	98900	636	RIVETS SHEARED OFF WELD HELD UNTIL
50	WELD INSTEAD OF RIVETING	C C	3	31	290	.85/8	2640	07		58600	155056	130600	84 3/4	SAME AS CC-1 IN TEST NO 8
AVERAGE										57985	133350	99366	71 10	RIVETS B2 BROKE OFF WELD AND RIVET NO 4
11		D	1	254	247	.90	2223	07		57800	128450	98900	77	
42	LIKE C BUT	D	3	253	253	.90	2277	07		57800	131610	100000	76	SAME AS D-1 TEST NO 11
17	WITH FULL	D	4	254	248	.90	2223	07		57800	129010	95100	73 10	BROKE 3 RIVETS
AVERAGE	FILLET WELD									57800	129700	98000	75 5/8	
1		E	1	232	235	.90	2115	05		57690	122014		100 % +	WELD HELD C.H. PLATE BROKE SCLEAR
9	LAP JOINT	E	2	234	237	.90	2133	05		57690	123053	113700	92 11/16 %	BROKE IN WELD, PART DIS OF PLATE ADHERED TO WELD
21	WITH FILLET	E	3	233	232	.90	2133	05		57690	123053	126300	100 % +	AT JOINT
26	WELDED BOTH	E	4	25	242	.93/32	2170	05		57690	125860	125800	99 15/16 %	IN WELD
2	PLATE EDGES	E E	1	294	312	.90	2808	05		59220	166290	156000	93 13/16 %	
28	NO RIVETS	E E	2	302	319	.90	2871	05		59220	170020	148000	87 %	
27	ARE WELDED	E E	3	31	345	.93/32	3071	05		59220	201348	171800	85 1/10 %	PLATE ALSO GAVE WAY ON ONE SIDE
AVERAGE										58850	147377	138415	94 %	
5	SAME AS	E E E	1	23	234	.90	2106	05		57800	121727		100 % +	WELD HELD PLATE BROKE
41	EXCEPT ALL	E E E	3	232	241	.88	2.39	02		58770	125702		100 % +	6
42	OXY-ACY	E E E	4	232	244	.85/32	2156	02		58770	126818		98 3/4 %	18
AVERAGE	WELDED									58450	124750		100 % +	
37		F	1	262	250	.875	2188	03		58000	119248	120900	100 % +	JOINT PULLED THRU BUTT & STRAP FILLET WELDS
46	SINGLE BUTT	F	2	252	245	.90	2205	01		59650	131526	124000	94 1/10 %	SAME AS F-1 TEST NO 37
45	STRAP ARC	F	3	25	250	.90	2250	01		59650	134212	131200	97 7/8 %	
36	WELDED	F	4	243	233	.925	2155	01		58900	125852		100 % +	WELD HELD ON PLATE BROKE NEAR JOINT OTHER SIDE
19	NO RIVETS	F F	1	312	310	.9125	2.8875	08		58900	165199	141900	91 3/4 %	SAME AS F-1 TEST NO 37 PLATE COMMENCED
35		F F	2	322	290	.875	2.534	03		58450	148218	140550	94 7/8 %	TO TEAR IN B PLATE
18		F F	3	332	283	.900	2.900	03		62000	179400	173000	96 7/8 %	BUT WELD CARRIED AWAY PART OF PLATE
AVERAGE										59700	143436	136880	95 3/4 %	
40	OXY-ACETY	F F F	1	252	25	.875	2.190	08		58000	127368	118600	88 1/8 %	WELD HELD PLATE BROKE BACK OF WELD
50	SAME AS F	G	1	25	243	.93/4	2.196	01		59655	129928	104200	80 %	BROKE IN BUTT WELD WHEN STRAP PARTED THRU
43	EXCEPT STRAP	G	2	252	238	.90	2.115	01		59655	126170	102100	80 1/2 %	SAME AS G-1 TEST NO 50 BOTH STRAPS LEFT ON
20	WELDED ON	G	3	27	242	.90	2.430	01		59655	132970	130800	100 % +	BROKE IN WELD ACCOMPANIED BY BULGE IN STRAP
AVERAGE										59655	129690		98 1/2 %	BUTT WELD AND FILLET ON ONE SIDE FAILED REMAINDER FILLET WELD OK
53	OXY-ACETY	GGG	1	252	250	.875	2.234	00		58000	123578		100 % +	SAMPLE
38	SAME AS G	H	1	274	245	.90	2.230	04		58000	129648		100 % +	WELD HELD ON PLATE BROKE CLEAR
55	WELDED ON	H	2	272	240	.90	2.190	04		58000	127420		100 % +	22 130000
AVERAGE										58000	128354		100 % +	
33	SAME AS F	I	1	242	235	.916	2.130	02		58110	123774		100 % +	WELD ON PLATE BROKE
54	WITH COMBINATION	I	2	242	238	.916	2.187	06		58110	127086		100 % +	8 180340
AVERAGE	ROUND & OVAL HOLES									58110	125230		100 % +	
6	LAP JOINT	J	1	35	308	.10	3.08	0.0	LLOYD'S	60000	184800	ABOUT 180	SAY 3/100 %	NO TEST - BUT THE SS WAS FOUND PRACTICALLY
43	BUTT WELDED	J	2	35	308	.10	3.08	0.0	STANDARD		184800	178200	96 1/2 %	IF THESE SPOTS SHOULD BE CONSIDERED AS WELD
AVERAGE										60000	184800	EFFICIENCY	98 1/2 % FOR 38 PLUS CONS. DEDUCTION	

LETTER FROM MR. FRENCH

Dear Mr. Ewertz:

I duly received your letter of October 2nd having further reference to our requirements regarding the application of electric welding in ship construction.

I do not know where you got the impression that our Society has stipulated the use of any particular flux covered wire as this is most certainly not the case. If you will revert to Page 7 of the circular which I sent you with my last letter, you will see a list of electric welding systems which have already been approved by this Society, to which, I may say, has been added recently the "Blohm and Voss System" and, as you are doubtless aware, some of these systems imply the bare wire electrode. Pages 3 and 4 of the Circular specify the regulations and tests which must be complied with by any system for which approval of the Society is desired, and any electrode which will give satisfactory results under these tests will, of course, be approved.

As regards our stand in connection with electric welding, I think the pioneer work which the Society has already done, and its willingness to formulate at this stage a set of tentative regulations for electrically welded vessels as a whole, speaks for itself.

Of the minor items on which welding may be tried out to advantage, given in this same circular and which is frequently referred to in this country as the American Bureau of Shipping's

Generated on 2024-09-12 12:17 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Table 25 (Continued)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
SERIAL NO. OF TEST	DESCRIPTION OF FABRICATED SAMPLES — TYPE DESIGN	SYMBOL	SAMPLE NO	CROSS SECTION — WEIGHT	THICK	WIDE	AREA	DESCRIPTION OF PLATE USED — IDENTIFICATION NO.	GRAIN SYMBOL	AVERAGE TS OF TESTED COUPONS	TOTAL ULTIMATE STRENGTH — CORRECTED PLATE CALCULATED	JOINT ACTUAL	TEST OBSERVATIONS — PERCENTAGE	REMARKS
33		K	1	582	304	10	304		LUMEN'S	60000	182400	78000	42 9/16 %	
4	SAME AS K WITH LAP WELDED AND CHAMFERED TOP	L	1	242	243	9 1/16	2275			58000	131950	80700	61 14 %	JOINT FAILED BY SHEAR OF RIVETS
24		L	2	243	249	9 1/16	2267			58000	130906	76800	58 3/4 %	" " " OF 3 RIVETS IN FULL STRENGTH
AVERAGE										58000	131428	78750	59 9/16 %	
57	LAP RIVETED BEAM	M	1	216			EACH BEAM IS A 54" x 4" IN WEB SECTION					83350	ULTIMATE STRAIN	BEAM COLLAPSED OVER RIVETED SEAM ABOVE 3 TONS / 13"
58	LAP WELDED BEAM	N	1	225			WITH 2 3/4" x 3 1/2" STIFFENING ANGLES RIVETED					98000	ASSUMED TO CAUSE	BEAM COMPLETELY COLLAPSED WITHOUT INDICATIONS
59	BUTT STRAP WELDED BEAM	O	1	250			TO BOTH SIDES OF ENDS AND TOP AND BOTTOM EDGES					129250	RESPECTIVE BE ANS	BEAM COMPLETELY COLLAPSED WITH FAILURE OF ANY PORTION OF BUTT OR STRAP WELDING
30 G	UNFINISHED ARC WELDED	P	1	5	3/16	2.0	0.636			62700	40877		100 % +	BROKE IN PLATE AT LOW QUALITY FINE SILKY 4 MILLIONS
33 G	BUTT JOINT	P	2	4	845	2.0	0.490			58770	28797		100 % +	" " 28830 FRACTURE FINE SILKY
AVERAGE														
37 G	MACHINED ARC WELDED	P	3	5	264	1.97	0.3801			59220	30794	23830	77 1/2 %	BROKE IN WELD - NO SET
36 G	BUTT JOINT	P	4	5	260	2.03	0.5278			"	30872	21820	70 9/16 %	" " " FRACTURE DULL GRANULAR
AVERAGE														
31 G	UNFINISHED ARC WELDED	PPP	1	4	240	2.0	0.980			57800	27740		100 %	BROKE IN PLATE @ 2 KNOBLES FRACTURE FINE SILKY
32 G	BUTT JOINT	PPP	2	4	240	1.96	0.490			57800	28322	25300	88 3/16 %	" " WELD " 88% CRYSTAL
AVERAGE														
33 G	MACHINED SURFACES	PPP	3	4	463	1.98	0.3287			58000	18717	17080	90 1/16 %	BROKE IN WELD - FRACTURE DULL GRANULAR
34 G	BUTT JOINT	PPP	4	4	173	1.97	0.34			58000	19720	14580	73 3/4 %	" " " " FINE "
AVERAGE														
1 TO 29	COUPONS	Q	1-29					C TO BAND		SEE NOTE B				
16	ROUGH BUTT JOINT FACED NO STRAP	R	1	562	488 405	9	4815		LUMENS	60000	288900	190000	67 8/16 %	BROKE IN WELD - IMPROPERLY PREPARED JOINT
5		R	2	86	503 223	9 4	4929		FLANGE	60000	295423	208900	71 %	" "
7		AW	1	38	3.29	2.0				THESE 3 SAMPLES DESIGNED TO TEST THE		10000 +	40743 LBS/SQ IN	WEAK TEST ALL 4 FUSED METAL
30	DBL STRAP WITH TESTS FUSED WELD	BW	2	384	3.00	2.2125				DBL SHEAR VALUE OF 4 FUSED METAL PINS		90660	36913	PINS WELL DOUBLE SHEARED OFF SQUARE
31		BW	3	382	3.02	2.1875				OF 3/4 DIA DEPOSED AS RIVETS IN TESTS 30 & 32		99900	40782	WITHOUT DAMAGE TO PLATE OR STRAPS
AVERAGE				ALL SHEAR STRAIN AT ELASTIC BODY LIMIT						PLATE BETWEEN DOUBLE STRAP PLATES			39453	FIGURES IN COLUMN 14 INDICATE DOUBLE SHEAR
23		BR	1	407	3.23	0.375				THESE 3 SAMPLES DESIGNED TO TEST		113900	46400 LBS PER SQ IN	IN TESTS 23 & 32, 30 OF THE 4 PRESSED STEEL
32	DBL STRAPPED BUTT JOINT	BR	2	42	3.3 3.42	9.1875				THE DOUBLE SHEAR VALUE OF 4 STANDARD		113000	46484	RIVETS DOUBLE SHEARED OFF SQUARE
29	OF RIVETS	BR	3	42	3.13	9.25				PRESSED STEEL RIVETS EACH 3/4 DIAMETER		112800	45358	BUTT STRAP BROKE AND CARRIED AWAY PORTION OF SHIP PLATE IN NO 23 THREE RIVETS AND SO
AVERAGE													46060	
65	LAP WELD	4E	1	154	750	2.0	6.75			64833	437623	318600	72 9/16 %	EACH JOINT BROKE IN WELD BEFORE
66		4E	2	154	750	2.0	6.75				437623	318000	72 1/16 %	REACHING ITS FULL FS DUE TO
67	NO RIVETS	4E	3	154	748	2.0	6.732				436456	315000	72 1/16 %	DEFLECTION OF PLATE WHICH CAUSED A
AVERAGE										64833	437234	317167	72.6 %	PRIMARY PRYING OFF EFFECT
68		5E	1	207 1/2	1.008	9.00	9.072			62466	566220	448000	79 %	RESULTS SAME AS IN TESTS 65-67
69		5E	2	205	0.996	9.03	8.988				561757	411000	73 1/16 %	JOINT 5E-3, TEST 70 - HAD SCANT WELD
70	SAME AS 5E	5E	3	205	1.003	9.00	9.000				5621 80	398000	70 9/16 %	SECTION OWING TO END OF PLATE HAVING
AVERAGE										62466	563547	418666	74.3 %	BEEN HAMMERED DOWN TO 3/4 THICK
61	SINGLE LAP RIVETED JOINT	AA	2	30	.295	2.0"				THESE WERE ALL BENDING TESTS		2-63000	TEST STRIPS OBTAINED	SLIGHT CRACKS CROSSING AND OPENING UP RIVET HOLES
62	SINGLE LAP RIVETED JOINT	B.D. C	3	25	247	2.0				IN EACH CASE	WAS PARTS SUPPLIED	1-50000 2-57000	BY FIRST FOLDING PLATE	NO EFFECT ON MACHINED PORTIONS MIDDLE RIVET HOLES
63	SINGLE LAP WITH FULL PLATTING	D	2	25	249	2.0"				REQUIRED TO CROSS BEND SAMPLE		1-38000 2-42000	ADDITIONALLY BETWEEN	WELD BLOWN OUT ON ONE SIDE OF FAILURE OUT SIDE PLATE CRACKED
60	DOUBLE BUTT WELD DBL LAP JOINT	EEE	2	23 1/2	249	9.0"				90° AND 1/2 THE PRESSURE TO		1-87000 2-18000	HOPE EDGES, THEN	NO CRACKING DEVELOPED
64	RECESSED SHELL BUTT STRAP JOINT	F	5	252	246	90°				BEND IT FLAT AND TO < SHAPE		1-58000 2-11000	SECOND, BY DIRECT PRESSURE	WELD HELD PERFECTLY INSIDE BUTT STRIP BROKE WITH STRETCH BEHIND RIVETED BROKE WELD & LIFTING SHIP PLATE TO 45° FROM APPROXIMATELY
71	COUPON	PRIMARY	1	11	630	2.0	1.428			64800	PLATE WA: 26%	STRAIN A: 41%	RECOVERY A: 47%	IMPERFECT CUP, DULL, SILKY
72		SECONDARY	2	11	634	2.25	1.431			65100	" " 25%	" 42%	" 42.5%	ANGULAR; DULL, SILKY
73		TERTIARY	3	11	636	2.244	1.425			64600	" 26%	" 43%	" 44.3%	SEMI-CUP: DULL SILKY
AVERAGE										64833				
74	COUPON	PRIMARY	1	15	864	1.755	1.516			63300	" 25.5%		" 49.3%	CUP; DULL, SILKY
75	"	SECONDARY	2	15	844	1.758	1.476			61300	" 27.1%		" 53.4%	IRREGULAR; DULL, SILKY
76	"	TESTS	3	15	870	1.764	1.526			62800	" 26.6%		" 51.8%	CUP; DULL, SILKY
AVERAGE										62466				

NOTE A - SOLID BLACK SHADING INDICATES FUSED WELD MATERIAL — ARC WELDED COUPON, P-1 & 2 TEST NO. 30 G SHOWED ELONG IN 10" 15.5% REDUCTION AREA 31.6%

NOTE B - FIGURES IN COLUMN 11 WERE OBTAINED FROM PHYSICAL TESTS " " " P-2 " 35 " " " 1.5 " EAR " " " 46.7%

NOS. 1 TO 29 INCL. OF COUPONS "Q" BY ACKT " " PPP-1 " 31 " " " 23.5 " 49.3%

" " PPP-2 " 35 " " " 0.5 "

List, but which originated in this office, is another indication of the Society's desire to further the development of this process.

I enclose herewith some further papers issued by our Society, which may be of use to you.

Yours very truly,
J. FRENCH.

The reference in Mr. French's letter to electrodes is in reply to the author's question as to the use of electrodes for ship work not given in the list of electrodes approved by this society and proves that the society is ready to approve other types of electrodes, if they are able to pass the required test.

Lloyd's Register of Shipping

APPLICATION OF ELECTRIC ARC-WELDING TO SHIP CONSTRUCTION

INTRODUCTORY REMARKS

Although electric welding in various forms has been employed for many years for ship repair work, yet, in practice, owing to many factors, its use has been practically confined to those parts of the structure which are not likely to be exposed to important structural stresses.

It is only in recent times, commencing from the early days of the war, that appreciable progress has been made in the developments of electric welding which would appear to justify the exten-

Generated on 2024-09-12 12:01 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Table 26.—Tensile Tests

(Twelve strips of ships plate 2" wide, 24" long. Eight strips with butt welds in the middle and four strips unwelded.)

Test No.	Description and Size.	Original Area.	Ultimate Strength Total per Sq. in.		Reduction of Area at Fracture.	Final Extension in 8"	Ratio of weld to solid.
BBB		sq. in.	lbs.	lbs	per cent.	per cent.	per cent
5939	2" × ¾" unwelded	1.48	86,400	58,400	49	31.5	
5940	,, welded	1.50	87,500	58,300	45	27.0	100
5941	,, welded	1.50	88,100	58,700	21-	19.2	100
5942	2" × ¾" unwelded	1 02	67,500	66,200	49	27.2	
5943	,, welded	1.01	64,200	63,600	47	18.5	100
5944	,, welded	1.03	62,800	61,000	22	14.0	92
5945	2" × ¼" unwelded	.44	29,400	66,800	29	19.2	
5946	,, welded	.44	27,500	62,500	23	6.9	100
5947	,, welded	.44	27,800	63,200	25	10.5	100
6018	2" × 1" unwelded	1.98	111,400	56,300	53	33.1	
6017	,, welded	1 94	113.800	58,700	49	26.5	100
6016	,, welded	1.96	113,000	57,600	52	26.6	100

Of the above eight welded strips, seven broke outside the weld and only one, No. 5944, broke in the weld, at 27.2 tons per sq. in.

Table 27.—Tensile Tests

(Two ships steel plates, ½" thick, 5' x 3', with butt welds across the center parallel to short sides. Shaped. Four unwelded test pieces cut from solid plate for comparison.)

Test No.	Description and Size.	Original Area.	Ultimate Strength. Total per sq. in.		Reduction of Area at Fracture.	Final Extension. In 4"	Final Extension. In 20"	Ratio of weld to solid.
BBB		sq. in.	lbs.	lbs.	per cent.	per cent.	per cent.	per cent.
5120	20" × 49" welded	9.80	598,900	61,100	24.7	19.0	11.3	97
5121	do. do.	9.80	596,600	60,900	24.4	9.5	10.9	100
5120	2" × 48" unwelded	.96	60,600	63,100		I 8" 23.5		
5120a	do. do.	.98	67,700	69,100		22.0		
5121	2" × 51' do.	1.02	61,200	60,000		24.0		
5121a	do. do.	.96	58,900	61,400		26.0		

Both the above welded plates broke partly through the weld and partly through the solid plate.

Table 28.—Modulus of Elasticity Tests

(Two strips 12" long, 1" x ½" section, built up entirely of deposited metal.)

Test No.	Description and Size	Original Area	Ultimate Strength Total per sq. in.		Yield Point per sq. in.	Ratio Yield to Ult.	Reduction of Area of Fracture	Final Extension in 8"
BBB	ins.	sq. in.	lbs.	tons	tons	per cent.	per cent.	per cent.
5035	1" × ½" shaped	.47	31,100	29.6	19.0	64	17	11.5
	Modulas of Elasticity.							
	28,900,000 lbs. per sq. in.							
5036	1" × ½" shaped	.50	31,500	28.1	17.5	62	26	14.6
	Modulas of Elasticity.							
	25,000,000 lbs. per sq. in.							

For comparison it should be noted that the modulus of elasticity of mild steel is 13,500 tons and of wrought iron 12,500 tons per sq. in.

Table 29.—Impact Tests

(Two ships steel plates, one ½" thick and one ¼" thick, each 5' x 2' 6", with butt weld mid length parallel to short sides. Blows were applied along the weld across full width of plate. Both blows on same side of plate.)

Test No.	Description and Size.	Span.	Weight of Tup	Height of Fall.	Result.
BBB			cwts.	feet	
2762	¼" thick, 5' × 2' 6"	1st blow, 4' 6"	2	9	Uncracked
		2nd blow, 4' 0"	2	9	Uncracked
2763	½" thick, 5' × 2' 6"	1st blow, 4' 6"	4	12	Uncracked
		2nd blow, 4' 6"		12	Uncracked

Table 30.—Alternating Stress Tests

(Thirteen specimens turned ⅝" dia., with butt weld at center. Rotated at 1,000 revs. per min. Subjected to constant alternating bending moment in region of weld.)

Test No.	Description.	Calculated stress at periphery.	Number of reversals before fracture.	Results.
BBB		tons per sq. in.		
2680		6.4	4,355,000	Fractured
2687		6.4	5,000,000	Unbroken
2689		7.4	5,000,000	Unbroken
2681		7.5	2,000,000	Broke at junction
2690	Steel plate 36" x	8.4	5,000,000	Unbroken
2682	15½" × ¾" weld, full	8.5	1,705,000	Fractured
2688	width 9" from end;	9.3	1,510,000	Fractured
2683	cut and turned up	9.4	390,000	Broke at junction
2684	into 13 rods.	10.1	2,230,000	Fractured
2691		11.2	246,000	Broke at junction
2686		12.0	390,000	Fractured
2692		12.3	352,000	Fractured
2685		12.5	150,000	Fractured

Table 31.—Results of Chemical Analysis of Electrodes and Deposited Metal

	Electrodes (Two pieces A.W.P.)	Steel Plate.	Deposited Metal.
	per cent.	per cent.	per cent.
Carbon (by combustion)	0.149	0·172	0.106
Silicon	0.051	0.020	0.010
Sulphur	0.063	0 034	0.051
Phosphorus	0.050	0.044	0.036
Manganese	0·409	0.430	0.488

Results of Tests by Messrs. Vickers, Ltd., Made at Their Naval Construction Works, Barrow-in-Furness, on Samples Welded by the Quasi-Arc Electric Welding Process. Tensile Strength of Steel, 26 to 30 Tons per Sq. In. March, 1914

No. of Sample.	Description of Joint in Test Piece.	Dimensions of Section in Inches.	Area, Sq. In.	Tons on Sq. In.	Elongation per cent. in 8 In.	Nature of Test.	Remarks.	Sketches of Welded Joints.
A 1	Butt weld	2 × 5	1	25	6·5	Tensile	Clean fracture through weld	
A 2	Do.	2 × 5	1	22	3·		Do. do.	
A 3	Do.	2 × 5	1	—	—	Bending	Bent through 135 deg. over a radius of ¾ in.—broke through weld	
A 4	Do.	2 × 5	1	—	—	"	Bent through 180 deg. over a radius of 1¼ in.—without fracture.	
B 1	Plates overlapped ¾ in., and welded on each side	2 × 5	1	17·2	5	Tensile	Clean fracture at weld.	
B 2		2 × 5	1	21·8	7	"	Do. do.	
B 3	Do. do.	2 × 5	1	—	—	Bending	Bent through 17 deg. over ¾ in. radius without fracture	
B 4	Do. do.	2 × 5	1	—	—	"	Bent through 180 deg. over 1¼ in. radius without fracture	
C 1	Flat bar welded on, and then removed before testing sample	2 × 5	1	25·5	27·5	Tensile	Fractured outside the locality where flat bar was welded on.	
C 2		2 × 5	1	24·5	23	"	Do. do.	
C 3		2 × 5	1	—	—	Bending	Bent double between welds over ¾ in. radius without fracture	
C 4	Do. do.	2 × 5	1	—	—	"	Bent double at weld over ¾ in. radius, very slight fracture showing at part where flat bar had been welded.	
D 1	Longitudinal butt weld	2 × 4	8	28·2	18	Tensile	Clean fracture across weld	
D 2	Do. do.	2 × 4·2	8·4	29·2	21	"	Very minute signs of fracture along whole length of weld.	
D 3	Do. do.	2 × 4	8	—	—	Bending	Bent double over 1½ in. radius—slight fracture at welded part	
H 1	Two ½-in. × ¾ in. bars welded together to form angle	—	—	—	—	"	Points of angle closed in—no fracture	
H 2		—	—	—	—	"	Points of angle opened out—fracture at weld commencing.	
H 3	Do. do.	—	—	—	—	Not tested.		
F 1	Flanged plate welded to angle bar at heel & toe	4 × 5	—	Breaking stress 43	4	Tensile	Clean fracture along weld.	
F 2		4 × 5	—	39	3	"	Do. do.	
F 3	Flange of plate riveted to angle-bar	½ × 5	—	18·5	—	"	Three ¾in. countersunk rivets—rivets pulled through holes.	
K	Plates lapped and single riveted—one seam welded	—	—	—	—	Bending	Bent through 35 deg. at joint—no fracture at weld.	

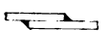
Generated on 2024-09-12 11:59 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Results of Tests Carried Out on Behalf of the Taikoo Dockyard & Engineering Company of Hong Kong, on Samples of Mild Steel Welded Electrically by the Quasi-Arc Electric Welding Process. June, 1914

Mark or No. of Sample	Dimensions of Test Piece in inches	Breaking Load in lbs.	Tons per Sq. In.	Elongation %, Increase on 3 Ins.	Tensile strength of Original Material Tons per Sq. In.	% of Efficiency	Remarks
D 2/3	1·44 × ·192	30,350	21·9	6·6	25·6	90·0	—
D 3/2	1·48 × ·195	30,250	23·0	10·0	25·6	94·0	—
D 4/3	1·5 × ·375	25,950	20·6	6·6	25·6	77·5	—
D 3/2	1·5 × ·375	25,825	22·5	5·8	25·6	77·0	—
S 15	1·495 × ·187	26,600	20·8	10·0	20·8	100·0	—
S 13	1·495 × ·185	26,830	20·8	10·0	20·8	100·0	—
S 12	1·5 × ·372	35,880	30·7	18·3	20·8	100·0	—
S 10	1·5 × ·375	—	—	—	—	—	Bent through 135 deg. over ¾ in. radius before fracture
S 11	1·5 × ·375	—	—	—	—	—	Bent through 135 deg. over ¾ in. radius before fracture
S 14	1·5 × ·375	—	—	—	—	—	Bent through 135 deg. over ¾ in. radius before fracture
C 3/3	·656 diam.	16,379	21·6	6·6	25·6	81·25	—
C 3/1	·656 ,,	17,579	23·2	6·6	25·6	87·5	—
C 3/2	·656 ,,	15,845	20·9	8·3	25·6	78·75	—
C 3/6	·656 ,,	17,490	22·9	10·0	25·6	86·0	—
C 3/7	·656 ,,	16,075	21·1	6·6	25·6	79·5	—
C 3/8	·656 ,,	18,580	24·5	11·6	25·6	92·0	—
C 3/10	·656 ,,	17,210	22·72	11·6	25·6	85·5	—
C 3/11	·656 ,,	15,960	21·0	6·6	25·6	79·0	—
C 3/12	·656 ,,	15,960	21·0	6·6	25·6	79·0	—
C 2/3	·656 ,,	18,615	24·5	13·3	25·6	92·1	—
C 2/4	·656 ,,	17,220	22·74	10·0	25·6	85·5	—
C 2/1	¾ × ¾	—	—	—	—	—	Bent through 45 deg. internal radius ¾ in. before fracture
C 2/2	¾ × ¾	—	—	—	—	—	Bent through 45 deg. internal radius ¾ in. before fracture
C 3/9	¾ × ¾	—	—	—	—	—	Bent through 45 deg. internal radius ¾ in. before fracture
C 3/13	¾ × ¾	—	—	—	—	—	Bent through 45 deg. internal radius ¾ in. before fracture
C 3/14	¾ × ¾	—	—	—	—	—	Bent through 45 deg. internal radius ¾ in. before fracture

Comparative Tensile Tests of Quasi-Arc Electrically Welded Lap, Strap and Butt Joints, Against Riveted Lap and Strap Joints

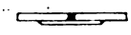
QUASI-ARC WELDED LAP JOINTS.



SPECIMENS OF MILD STEEL.	DIMENSIONS. Overlap.	Breadth.	Thickness.	Sectional Area sq. in.	Tons. Max. Stress. Total.	per sq. in.	REMARKS.
Plain Bar ...		5·5 in.	·25 in.	1·375	39·3	28·55	
Welded Bar ...	1·5 in.	6 in.	·25 in.	1·5	40·1	26·7	Broke 6 in. clear of weld.
Plain Bar ...		2 in.	·50 in.	1·0	28·4	28·4	
Welded Bar ...	2 in.	5 in.	·50 in.	2·5	64·75	25·9	Broke 5 in. clear of weld.
Plain Bar ...		2 in.	·75 in.	1·5	42·0	28·0	
Welded Bar ...	2·25 in.	5 in.	·75 in.	3·75	89·5	23·85	Broke 5½ in. clear of weld.

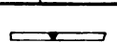
NOTE.—It should be remembered that with lap joint specimens the neutral axis is not in a straight line, which results in an apparent lower ultimate strength value due to bending.

QUASI-ARC WELDED BUTT STRAP JOINTS.



SPECIMENS OF MILD STEEL.	DIMENSIONS. Length.	Breadth.	Thickness.	Sectional Area sq. in.	Tons. Max. Stress. Total.	per sq. in.	Size of Butt Strap.	REMARKS.
Welded Bar ...	25 in.	4 in.	·50 in.	2·0	59·6	29·8	3·25 in. by ·25 in.	Broke 5 in. from centre weld.
Welded Bar ...	25 in.	4 in.	·50 in.	2·0	60·0	30·0	3·25 in. by ·25 in.	Broke 5 in. from centre weld.

QUASI-ARC WELDED BUTT JOINTS.



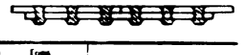
SPECIMENS OF MILD STEEL.	DIMENSIONS. Length.	Breadth.	Thickness.	Sectional Area sq. in.	Tons. Max. Total.	Stress. per sq. in.	% of strength compared with original Bar.	REMARKS.
Plain Bar ...	24 in.	2 in.	·25 in.	·50	14·25	28·5		
Welded Bar ...	48 in.	14 in.	·25 in.	3·5	80·0	25·4	90%	Broke through Weld.
Plain Bar ...	24 in.	2 in.	·50 in.	1·0	28·4	28·4		
Welded Bar ...	48 in.	10·5 in.	·50 in.	5·25	141·0	26·8	94·5%	Broke through Weld.
Plain Bar ...	24 in.	2 in.	·75 in.	1·5	30·75	20·5		
Welded Bar ...	48 in.	6·5 in.	·75 in.	4·02	120·0	24·4	92%	Broke through Weld.

Comparative Tensile Tests of Riveted Lap and Strap Joints, Against Quasi-Arc Electrically Welded Lap, Strap and Butt Joints

TREBLE RIVETED LAP JOINTS.

SPECIMENS OF MILD STEEL.	DIMENSIONS. Overlap.	Breadth.	Thickness.	RIVETS. Diameter	Spacing	Sectional Area sq. in.	Tons. Max. Stress. Total.	per sq. in.	% of strength compared with plain bar	REMARKS.
Plain Bar		2 in.	·50 in.			1·0	27·4	27·4		
Riveted ..	7·5 in.	18·25 in.	·526 in.	¾ in. dia.	2·625 in.	9·6	165·5	17·22	63%	Broke through outer line of rivet holes.
Riveted ..	9 in.	18·625 in.	·489 in.	¾ in. dia.	3·125 in.	9·1	172·0	18·91	69%	Do. do.

TREBLE RIVETED BUTT STRAP JOINTS.

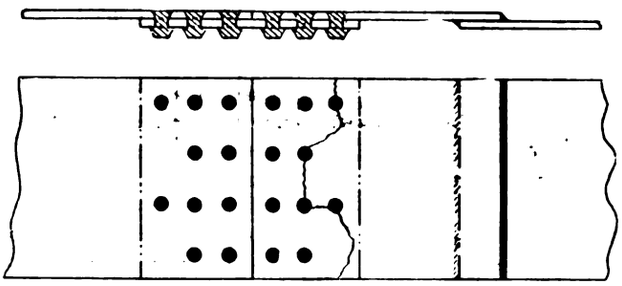


SPECIMENS OF MILD STEEL.	DIMENSIONS. Breadth.	Thickness.	Strap Thickness.	RIVETS.	Sectional Area sq. in.	Tons. Max. Total.	Stress. per sq. in.	REMARKS.
Load 20 tons –	12 in.	·5 in.	·625	¾ in. dia.	6·0	20	3·33	Caulking opening
,, 50 ,, –						50	8·33	Caulking opened ⅛ in.
,, 110 ,, –						110	18·33	Plate tore through rivet holes.

DOUBLE RIVETED BUTT STRAP JOINTS.

SPECIMENS OF MILD STEEL.	DIMENSIONS. Breadth.	Thickness.	Strap Thickness.	RIVETS.	Sectional Area sq. in.	Tons. Max. Total.	Stress. per sq. in.	REMARKS.
Load 20 tons	22 in.	·5 in.	·625	¾ in. dia.	6·0	20	3·33	Caulking opening
,, 40 ,,						40	6·66	Caulking opened ⅛ in.
,, 97 ,,						97	16·16	All rivets on one side sheared

Direct Comparison of a Treble Riveted Butt Strap Joint with a Quasi-Arc Welded Lap Joint. Plates 12" Wide and ½" Thick. Butt Straps ⅝" Thick. Welded Lap 2½".



TREBLE RIVETED BUTT STRAP JOINT. Load.	Result.	QUASI-ARC WELDED LAP JOINT. Load.	Result.
20 tons ...	Caulking opening.	20 tons ...	No movement.
50 ,, ...	Caulking open ⅛ in.	50 ,, ...	No movement
110 ,, ...	Plate broke as shown.	110 ,, ...	No movement.

sion of such methods to replace the usual riveted connections of heavy structural work.

The aim has been to secure reliability and regularity of operation in the welding process, and to assist the workmen by improving the means of control over the work. Just as in the case of application of steel to shipbuilding it was necessary to devise means for the production of the material in large quantities and of constant quality, so also is it necessary that the welding electrodes should be manufactured with the greatest possible degree of uniformity.

Reliability of operation is also facilitated by adjusting the density of the electric current to the size of electrode used, and further, the size of the electrode should reasonably vary directly with the thickness of material to be connected.

Research was necessary to discover means for minimizing the burning of the deposited material in the direction of preventing oxidation. In the early days of welding, the molten electrode was exposed to air throughout the whole time of deposition and consequently oxidation was more or less certain to occur. With coated metal electrodes burning is reduced to a minimum by the use of a slag which envelops the molten steel and floats on its surface after contact is obtained with the material to be connected. Even in this system skilled workmanship is essential, as the production of a long arc obviously increases the chances of burning.

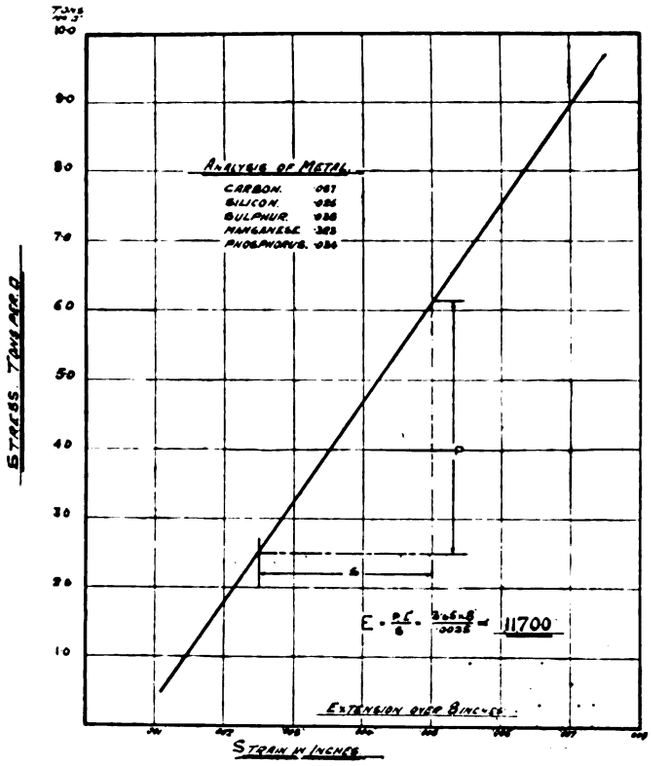
The composition of the material of the electrode in relation to the nature of the steel to be connected is obviously a matter of importance. What the composition is to be can only be gaged by experiment and by wide experience, and it is in devising the physical tests for work of this nature that the greatest difficulties arise.

It is commonly accepted that the tests imposed on manufactured material do not in any way represent the strains which may be experienced in practice. Such tests are rather based on simple means for determining the average reliability of the material. Thus also in this case no one particular test is likely to determine whether the welding process under trial is sufficient for the work it is likely to have to do.

It is therefore necessary to approach the problem rather on the basis of circumstantial evidence, and to decide from a number of different types of experiments whether, on the whole, the performance is satisfactory.

The more particular problem in shipbuilding is the connection of mild steel containing a percentage of carbon of about .15. This

Generated on 2024-09-12 12:00 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN



Stress Strain Diagram—Q. A. Metal Bar, Length 20" x 1.01" x .375" = .374 Sq. In.

material in the form of plates and section bars has considerable work done to it during the process of manufacture, with the consequence that it possesses a fine structure and a ductility which is uniform in any direction. The finished material may be said to be practically free from fibrous structure.

With electric welding, molten metal is attached to the mild steel and from the extent of the cooling surface the deposited material is rapidly lowered in temperature, with the consequence that the weld tends to become deficient in ductility.

The problem therefore is to select the material of the electrode so that the general elastic properties of the structure are not unduly depreciated.

The investigations were undertaken to determine the possibilities of the application of electric welding to shipbuilding and as it was desired to obtain as good a knowledge as possible of the physical properties of the combination of rolled and welded material, highly skilled operators were employed.

It must therefore be realized that the results of the experiments which have been made represent skilled practice, and that in general such performance can only be equalled with good workmanship and efficient supervision.

Nature and Description of Experiments

The general scope of the experiments included:

(*a*) Determination of modulus of elasticity and approximate elastic limit.

(*b*) Determination of ultimate strength and ultimate elongation.

(*c*) Application of alternating stresses with—
- (1) rotating specimens,
- (2) stationary test pieces.

(*d*) Minor tests, such as—
- (1) cold bending of welds,
- (2) impact tests of welded specimens.

(*e*) Chemical and microscopic analysis.

Tests were carried out on specimens as large as possible, particularly in respect to the static determinations of elasticity, ultimate strength and elongation, some of the test specimens being designed for a total load of just under 300 tons. The advantage of these large specimens was that the effect of workmanship was better averaged and the results were more comparable to the actual work likely to be met with in ship construction.

With alternating stresses the specimens were relatively of small size. For the rotating test pieces, circular rods, mainly machined from a welded plate, were used, the diameters selected being 1 inch and ¾ inch. These bars, about 3 feet in length, were attached to a lathe headstock and a pure bending moment in one plane was applied by means of two ball races to which known weights were attached. The material of the bar was thus exposed alternately to maximum tension and to equal maximum compression once in each revolution. The machine was run at about 1,060 revolutions per minute.

Bars of identical material were tried in pairs, one specimen welded and the other unwelded, and the number of revolutions before the specimens parted was observed for various ranges of stresses varying from ± 15 tons to ± 6 tons.

In the second series of alternating stress experiments flat plates were used of three thicknesses, viz.—¼ inch, ⅜ inch and ½ inch. These specimens were tried in groups of 4, each group consisting of 1 plain, 1 butt welded, 1 lap welded and 1 lap riveted plate. The specimens, which were about 14 inches long by 5 inches broad, were clamped along the short edges, so that the distances between the fixed lines was 12 inches. Each plate was also clamped, near the middle, to the end of a pillar, which by means of a crank arm was caused to oscillate and to bend the specimen equally up and down by adjustable amounts (the maximum total movement in any of the experiments tried was 5/16 inch). The machine was run at various revolutions (not exceeding 90 per minute) and the number of repetitions at which the specimen parted was observed.

Minor tests of various kinds were undertaken, of which the principal ones had reference to the suitability of the welded material to withstand such bending and shock stresses as might occur in the shipbuilding yards. The experiments on bending consisted of doubling the welded plate over a circular bar of diameter equal to three times the plate thickness, and comparing the results with those of the plate of the same material but unwelded.

In the impact tests heavy weights were dropped from various heights on to the welded portion of a plate 5 feet in length and 2 feet 6 inches in breadth, the weld being across the plate parallel to the shorter edge. The deflections were noted and the condition of the weld was examined after each blow.

The chemical and micrographical examination followed the ordinary practice.

Summary of Experimental Results

1. *Modulus of Elasticity and Approximate Elastic Limit.*

(*a*) In a welded plate the extensions in the region of the weld are sensibly the same as for more distant portions of the unwelded plate.

(*b*) With small welded specimens containing an appreciable proportion of welded material in the cross sectional area, the relation between extension and stress is practically the same, up to the elastic limit, as for similar unwelded material.

(*c*) The elastic limit (or the limiting stress beyond which extension is not approximately directly proportional to stress) appears to be slightly higher in welded than in unwelded material.

(*d*) The modulus of elasticity of a small test piece, entirely composed of material of the weld, was about 11,700 tons per square inch as compared with about 13,500 tons for mild steel and about 12,500 tons for wrought iron.

2. *Ultimate Strength and Ultimate Elongation.*

(*a*) The ultimate strength of welded material with small specimens was over 100 per cent of the strength of the unwelded steel plate for thickness of ½ inch, and averaged 90 percent for plates of ¾ and 1 inch in thickness.

(*b*) Up to the point of fracture the extensions of the welded specimens are not sensibly different from those of similar unwelded material.

(*c*) At stresses greater than the elastic limit, the welded material is less ductile than mild steel, and the ultimate elongation of a welded specimen when measured on a length of 8 inches only averages about 10 percent as compared with 25 to 30 per cent for mild steel.

3. *Alternating Stresses.*

(*a*) *Rotating Specimens (round bar).*

(1) Unwelded turned bars will withstand a very large number of repetitions of stress (exceeding, say, 5 millions) when the range of stress is not greater than from 10½ tons per square inch tension to 10½ tons per square inch compression.

(2) Welded bars similarly tested will fail at about the same number of repetitions when the range of stress exceeds ± 6½ tons per square inch.

(*b*) *Stationary Test Pieces (flat plate).*

(1) Butt welded specimens will withstand about 70 percent of the number of repetitions which can be borne by an unwelded plate.

(2) Lap welded plates can endure over 60 per cent of the number of repetitions necessary to fracture a lap riveted specimen.

Generated on 2024-09-12 12:05 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

4. *Minor Tests.*

(*a*) Welded specimens are not capable of being bent (without fracture) over the prescribed radius to more than about 80 degrees with ¼ inch plate, reducing to some 20 degrees where the thickness is 1 inch. Unwelded material under the same conditions can be bent through 180 degrees.

(*b*) Welded plates can withstand impact with a considerable degree of success; a half inch plate of dimensions already quoted sustained two successive blows of 4 cwt. dropped through 12 feet, giving a deflection of 12 inches on a length of about 4 feet 6 inches without any signs of fracture in the weld.

5. *Chemical and Microscopic Analysis.*

(*a*) *Chemical Analysis.*

(1) The electrode was practically identical with mild steel, but there was a greater percentage of silicon.

(2) The material of the weld after deposition was ascertained to be practically pure iron, the various other contents being Carbon .03, Silicon .02, Phosphorus .02, and Manganese .04 per cent respectively.

(*b*) *Microscopic Examination.*

(1) The material of the weld is practically pure iron.

(2) The local effect of heat does not appear to largely affect the surrounding material, the structure not being much disturbed at about 1/16 of an inch from the edge of the weld. The amount of disturbance is still less in thin plates.

(3) The weld bears little evidence, if any, of the occurrence of oxidation.

(4) With welds made as for these experiments, *i.e.*, with flat horizontal welding, a sound junction is obtained between the plate and the welding material.

6. *Strength of Welds (Large Specimens).*

(*a*) *Butt Welds* have a tensile strength varying from 90 to 95 per cent of the tensile strength of the unwelded plate.

(*b*) *Lap Welds.*

(1) With full fillets on both edges the ultimate strength in tension varies from 70 to 80 per cent of that of the unwelded material.

(2) With a full fillet on one edge and a single run of weld on the other edge the results are very little inferior to those where a full fillet is provided for both edges.

(*c*) *Riveted Lap Joints.* For plates of about ½ inch in thickness, the specimens averaged about 65 to 70 percent of the strength of the unperforated plate.

Observations on Experimental Results

(1) *Static Elasticity.* It will be observed that the statical tests made to determine the elasticity indicate that, in general, the combination of welded and unwelded material behaves practically homogeneously up to at least the elastic limit. Moreover, the experiments show that the process of welding is such that the stress is distributed practically uniformly over the weld, and also transmitted uniformly to the adjacent plates.

The material of the weld is practically pure iron, and from the tests made on a specimen composed entirely of the deposited material of a weld, it will be seen that for a given stress the weld stretches slightly more than mild steel. This property will enable any undue occurrence of load being transferred in a proper manner to adjacent portions of the structure.

When, however, the stress exceeds the elastic limit and is so great that the extension grows continuously without increase of load, the welded material fails sooner than mild steel. This disadvantage is, however, of little practical importance in shipbuilding, and may be regarded as negligible in the particular problem under consideration.

(2) *Dynamic Elasticity.* In a structure, such as a ship, which is exposed to variations and reversal of stresses, it is extremely important to know whether the material to be used is likely to break down rapidly under such alternations and ranges of stress as are likely to be experienced. The modified Wohler tests employed in the experiments certainly indicate, if considered solely by themselves, that whereas for a given number of alternations mild steel would withstand a range of stress of, say, ± 10½ tons, the welded material might be expected to fail at about ± 6½ tons, a figure which is more nearly experienced in ordinary ship construction.

It would appear to be necessary to design the welded joints in such a manner that the amount of work likely to be thrown on the joint is as small as possible, and to meet such a condition a welded joint requires to be either lapped or strapped.

It will be noticed that the material in the weld appears to be nearly pure iron, and experiments of repetitive stress show that wrought iron bars are likely to fail under a range of stress of perhaps ± 7 to 8 tons as compared with mild steel at ± 10 to 11 tons. The weld has to be deposited electrically and is subject to variations in workmanship; it would consequently be considered satisfactory if the material could withstand a range of stress of say ± 6½ tons.

Consideration of the dynamic elasticity properties appears to show that in any case the welded material can experience as large a number of repetitions of stress as wrought iron could do, and it is always recognized that although iron could not approach the tests for mild steel, yet it was a satisfactory material for shipbuilding purposes. Further, attention to design of details will increase the performance of the welded joint, and in addition it must not be forgotten that 5,000,000 repetitions of stress is perhaps more than equivalent to 10 years' good sea service.

(3) *Physical Nature and Properties.* It has been mentioned that the welds experimented with are to be regarded as having been produced under most favorable conditions, and that throughout the experimental welds were made with the specimens horizontal and below the operator. In practice welds will require to be made vertically and overhead as well, consequently extreme care will be required in such operations.

The physical examinations indicate that the materials of the electrode and the system of welding adopted were suitable and reliable. Moreover, there was little apparent oxidation and the material in the neighborhood of the weld was not affected to any prejudicial extent.

(4) *Strength of Welds and Minor Tests.* Broadly speaking, the tensile strength of butt welds was as great as the unwelded material, but it is considered that greater reliability of workmanship is obtained with joints which are either lapped or strapped.

It was also found that the lapped joint was practically as strong as a riveted lapped joint and would probably remain tight when subjected to more trying conditions than are necessary to disturb a riveted lap joint.

In view of the satisfactory results of the extensive and exhaustive trials which have been carried out on electric arc welds, the Committee have decided to adopt, as a tentative measure, the following Provisional Rules for classification in Lloyd's Register Book of vessels electrically welded, subject to the notations "Experimental" and "Electrically welded."

The approval of the Society will be given to any system of welding which complies with these Regulations and consideration will be given to any alternative constructional arrangements which may be submitted for approval.

(*To be continued*)

Motor Boat Show Opens on Jan. 4

AN exceptional opportunity is afforded those interested in the automotive branches of engineering to visit both the Motor Boat Show and the Automobile Show in New York, January 4 to 12, inclusive.

At the Motor Boat Show, which will be held in Grand Central Palace, by the National Association of Engine & Boat Manufacturers under the experienced management of Ira Hand, secretary, many new features will be included. Nearly one hundred boats of all types up to 56 feet long and about two hundred engines of every type manufactured will be on display, boats and engines to meet every purse.

Standardization has swept the motor boat industry resulting in the production of boats on a quantity basis at a cost so much lower than built-to-order craft that boating has been placed within the means of the average man and scores of comfortable, low price boats will be displayed at this show.

Important Meeting of the American Marine Standards Committee

A MEETING of the American Marine Standards Committee together with the various Technical and Subject Committees and representatives of the American Marine Standards Committee appointed to function with committees of other organizations, will be held at the Department of Commerce, Washington, D. C., on Monday, January 21, 1924, at 11 o'clock A. M. This will be the first joint meeting between the Executive Board and the various Technical and Subject Committees and advantage will be taken of the occasion to review the work done during the past year and to discuss future activities.

Generated on 2024-09-12 12:02 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Questions and Answers Relating to Naval Architecture and Marine Engineering

Conducted by James L. Bates, Naval Architect, and W. B. Newton, Marine Engineer

This department is maintained for the purpose of answering all questions relating to ships and their machinery. All inquiries should bear the name and address of the writer. Anonymous communications will not be considered. The identity of the writer, however, will not be disclosed unless the editor is given permission to do so.

Lubricant for Heavy Duty Worm Gears

Q. (1,229).—What lubricant should be used for heavy duty worm gears that heat excessively when ordinary lubricating oil is used?

A. (1,229).—A heavy lubricating oil would ordinarily be used for this purpose. It not infrequently happens that even then excessive heating occurs. A recent instance of such a case was overcome by mixing white lead with the lubricating oil in the proportions of 50 pounds of the former to 75 gallons of the latter.

Preservation of Steam Auxiliary Machinery

Q. (1,230).—In the case of a vessel laid up for a considerable time, what measures should be taken for the preservation of steam-driven auxiliary machinery?

A. (1,230).—All of the bright iron or steel work except sliding surfaces and parts passing through stuffing boxes should be given a coating of white lead and tallow or other approved covering. The bearings should be well oiled and the oil holes later plugged with waste. The cylinders should be carefully drained and all fibrous or vegetable packing removed. Metallic packing should be left in place. Guide and sliding surfaces, piston rods, valve stems, stuffing boxes, the interior of steam cylinders and valve chests, etc., should be thoroughly cleaned and then given a coating of vaseline.

The mechanism should be given one complete revolution after the application of the vaseline to insure that all the parts have been properly covered.

Effect of Sulphur in Fuel Oil

Q. (1,231).—Please state whether any injury has resulted from the use of certain grades of fuel oil containing sulphur and, if so, to what extent?

A. (1,231).—According to the best available information, experience has shown that the amount of sulphur in fuel oil has no seriously injurious effect, except in cases of neglect, when, under certain conditions, pitting will occur in the same manner as with the use of coal.

When the Beaumont oil fields, in particular, were being opened, there were some who made dire predictions that the use of that oil would cause rapid deterioration of boiler surfaces. These opinions were probably formed without due consideration of the fact that coal having a larger sulphur content than that of oil had long been used for fuel without serious results.

It is not to be understood that sulphur in oil has *no* deleterious effects on metals. When sulphur, either in oil or in coal, is heated in the presence of iron, it not only renders that metal fusible at a lower temperature but also enters into combination with the iron thereby producing brittleness. High sulphur bearing oils attack copper and for this reason fuel oil piping and heating coils are usually made of iron or steel. Their action on bronze and brass appears to be either negligible or very slight, therefore fittings made from these alloys may be employed in pumps and pipe lines with safety.

From the most authentic data on this subject it appears that, under the same conditions, no greater injurious effects may be expected from the use of sulphur bearing oils than from coal of equal sulphur content.

Interesting information on the subject of fuel oil will be found in Sterling's Marine Engineers Handbook.

How Soldering and Brazing Differ

Q. (1,232).—Please explain just what constitutes the difference between soldering and brazing. I understand that a soldering material is used in both cases to make the necessary joint.

A. (1,232).—Aside from the difference in the methods employed in the operations of soldering and brazing, there are differences in the material used and in the results obtained.

In soldering, a soft solder composed of tin and lead is applied to the parts to be connected by means of a tool called a soldering iron. Rosin or hydrochloric acid is used as a flux.

In brazing, a hard granulated solder composed of about equal parts of copper and zinc and known to the trade as spelter or a special brazing metal having a higher copper content is used to connect the joints. Powdered borax is used as a flux.

The brazing material is sprinkled on the joint and fused by means of a blow-pipe flame. Very heavy work is brazed in a forge using charcoal or clean coke.

Brazing affords greater strength than soldering and is therefore more extensively employed for heavy work.

Fuel and Water Consumption of Navy Steam Cutters

Q. (1,228).—I am making inquiries regarding the Navy 50-foot diameter cutters, 10-foot beam, 3½-foot draft; 200 horsepower Thornycroft watertube boilers; 250 pounds pressure; oil burning; 2,100 shaft horsepower Westinghouse single-stage turbines with gear reductions. I am desirous of knowing the crude oil and water consumption when running wide open; that is, at 12 miles per hour? What would the coal and water consumption be wide open if I changed it to a coal-burning outfit? Also the coal and water consumption on the 30-foot by 8-foot steam cutters; 30 horsepower compound engine and boiler, wide open at 9 and 10 miles per hour?

What do first class soft and anthracite coal cost per ton in England at tidewater, freight rates per ton England to New York, and what is the tariff on same per ton?—E. M.

A. (1,228).—The highest speed run upon which I have been able to find record of steam and fuel oil consumption on the 50-foot Navy steam cutters fitted with Westinghouse turbines and reduction gears was at 9.02 knots. The data taken at that time follow:

Boiler pressure, gage, 237 pounds per square inch.

Steam pressure at turbines, gage, 131.6 pounds per square inch.

Vacuum, 24 inches.

Revolutions per minute, 604.5.

Pounds of steam generated per hour, total, 3,664.

Gallons of fuel oil burned per hour, 41.3.

On standardization trials the highest mean speed of the north and south runs was 10.5 knots.

It does not appear from investigation that trial data such as you wish were ever taken on the 30-foot Navy steam cutters.

First grade steaming coal, which corresponds to our high

Generated on 2024-09-12 12:01 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

grade soft coal, delivered at tidewater Newcastle and Cardiff, costs about 27 shillings per ton.

The freight rate for delivery in New York is $7.50 per ton, but when carried in American ships returning in ballast, this figure is reduced to about $3.50 per ton. There is no tariff on coal brought into this country from England.

No anthracite coal is now being shipped into this country from England and only in exceptional cases has it been done in the past.

LETTER TO THE EDITORS

What Has the Future to Offer for the Motorship?

NYACK-ON-HUDSON, N. Y.

TO THE EDITORS:

THERE can be absolutely no doubt that the motorship will become a powerful factor in the American merchant marine. Whatever is responsible for the comparatively small part now being played by the oil engine and the Diesel engine in our fleet, it is certainly patent that American naval architects, shipbuilders and owners cannot longer afford to neglect installing them in our ships. Competition by foreign motorships will soon force that.

How American shipowners, paying 43 percent of their operating expense for fuel, have so far succeeded in overlooking the lessons taught by such economical vessels as the *William Penn, Californian, Missourian, Bayonne, Kennecott, H. T. Harper, Solitaire, Charlie Watson* and other American motorships is a mystery. Not only have they proven economical to operate, but their service has been characterized by the utmost reliability. All credit is due such farsighted and progressive companies as the United American Line, Vacuum Oil Company, The Texas Company, Standard Oil Company, Alaska Steamship Company and others who have adopted the motorship in the face of strong pressure on the part of steam interests.

But we believe it to be entirely within the facts of the case when we state that the great majority of American shipowners is only mildly interested in the motorship, viewing it through a mist of figures and curves deducted by the frequent use of the slide rule and the report of "somebody else." Motorships are not perfect, none claims them to be so, but those seagoing American motorships operated by American engineers which have been placed in service have proven beyond the shadow of a doubt that the motorship operates at one-third the cost of operation of a steamship of similar deadweight, speed and power; that it is reliable and that it can ultimately produce greater dividends than the steamer. The world-voyages of the motorship *William Penn* should have proven sufficiently convincing; on her maiden voyage her total fuel and lubricating oil bill was $27,906.55, her average speed 10.65 knots on 13 tons of fuel per day. On the maiden voyage of the *Eclipse* of practically similar dimensions and power, but less deadweight, the fuel and lubricating oil cost $76,087.38 over the same distance, an average speed of 9.87 knots on 33.03 tons of fuel per day. The latter, a turbine-electric ship, cannot, on the basis of her log, be considered one whit more reliable than the motorship. Is not the slight increase in cost of the motorship of about 10 percent worth paying in the face of these figures?

The writer has found an amazing lack of interest in the motorship among those who should be most concerned. To be sure, there are officials who have spent thousands of dollars and months of time in the investigation of the Diesel oil engine for their companies and it is to be expected that these concerns will realize on that investment later. However, this does not alter the fact that this general apathy results in failure to visit and inspect motorships, obtain first hand information, talk with the engineers and deck officers, read the log and see with their own eyes and hear with their own ears the facts concerning motorship operation. Lack of contact leads to many inaccurate and false statements. As an instance: The writer, who had just spent the previous day on board an American motorship, talking with the engineers, inspecting the log book and witnessing the opening up of the engine for inspection and overhaul, was recently surprised to listen to the story told by a leading marine engineer of how frightfully this vessel had been troubled with pitted exhaust valves and corroded heads. It was naturally surprising because of the fact that the engineers and the log told the story of perfectly satisfactory operation, freedom from any such trouble and, when the engine had been opened up, it was in practically perfect condition. Our technical man had simply passed along what he had been told, he had never been aboard that motorship, but it is fair to assume that his advice to his clients must be influenced in a manner which does not advance the cause of the oil engine. Yet he is perfectly sincere and has no intention of mis-stating anything.

While this instance is not, we are glad to say, truly typical, nevertheless we must become more intimately acquainted with the oil engined ship, we must take more interest in the developments in which many progressive American firms are investing millions, we must go on board motorships, study motorships, operate them and then we must pay the extra first cost and—build motorships! Not until there is a sufficient volume of business to write off the cost of experiments, designs and patterns can the price of internal combustion engines be reduced to equal that of a steam installation.

We cannot but accept the verdict of such experienced, hard-headed shipowners as those of Great Britain, Denmark, Sweden, Norway and Germany. The latter country's shipyards have been humming with the work of turning out economical motorships to replace those surrendered to the Allies and her shipowners must be smiling to see us spending good money reconditioning her discarded steamers while she builds more economical motorships, craft with which we cannot compete. Many years ago the Danish East Asiatic Company discarded steamers and has since built up a wonderful fleet of motorships, while such Swedish lines as the Transatlantic Steamship Company, Swedish-American Line, etc., are solid for motorships. One of Norway's most experienced men, Fred Olsen, has turned from the steamer and many other Scandinavian owners could be listed who operate motorships exclusively.

Great Britain, like Scandinavia, imports every pound of oil and realizes the value of the motorship. If we in the United States hope to compete with her on the seas, we must, in addition to establishing world-wide banking connections, build and operate motorships such as those of the Glen Line, Lamport and Holt, the British India Steam Navigation Company, Furness, Withy and Company, the Bibby Line, Elder, Dempster Company, Royal Mail Steam Packet Company and others. We believe that in the motor passenger vessel there is one of the most fascinating fields of endeavor which can occupy the attention of those whose business it is to produce ships and America needs passenger ships more than she does cargo vessels. Therefore, we look forward to developments along these lines. But by all means let them be passenger *motorships*.

WILLIAM J. DEED, NAVAL ARCHITECT.

H. M. HUFF, has been appointed commercial agent at San Francisco of the Louisiana Railway & Navigation Company, of Texas. Mr. Huff's territory embraces California, Nevada, Arizona, Lower California, Sonora and Sinaloa, Mexico.

Generated on 2024-09-12 12:03 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

PERSONAL MENTION

H. C. HIGGINS, manager of the Philadelphia district for the Shipping Board, has resigned as a result of ill-health.

H. E. STOCKER has been appointed general freight agent of the intercoastal traffic of the Pacific Mail Steamship Company.

E. M. ROBERTS has been appointed representative of the Crane Packing Company in the marine territory of New York City.

W. J. DUBOIS, 308 Atlantic avenue, Boston, Mass., is connected with the Boston Engineering Company, Inc., as superintendent.

HARRY GOGERTY, formerly with the Dyson Shipping Company, recently established his own freight forwarding and brokerage business at 15 Moore street.

H. B. ATKINSON took charge of the chartering department of the United States Navigation Company, Inc., 17 Battery Place, New York, on December 4.

W. T. WILSON, for the past year manager of the New York office of the Morse Dry Dock and Repair Company, has resigned his position with this company.

M. V. HIGBEE, for many years manager of the marine department of Geo. S. Kausler, Ltd., has been elected vice-president, succeeding C. S. Mathews, deceased.

SAMUEL M. WILCOX, formerly with Trosdale, Plant & La Fonta, and also the Kerr Line, has joined the staff of the Robert Dollar Steamship Company at New York.

JOHN M. SMITH has resigned from the staff of the New York Shipbuilding Corporation, Camden, N. J., where he was assistant works manager for the past few years.

J. B. DUNCAN, formerly in charge of the Philadelphia office of the Black Diamond Steamship Company, has been appointed manager of the Antwerp office of the line.

CAPTAIN JOHN F. BLAIN, independent marine surveyor and engineer of Seattle, has been made general superintendent of the Robert Dollar Lines at San Francisco.

EDWARD A. COLSON, general operating engineer of the Babcock and Wilcox Company, gave a talk on "Boilers" to the cadets of the schoolship *Newport* on December 19.

GEORGE H. WOOLLEY, of the Commercial Towing Company, of Boston, was re-elected president of the National Board of Steam Navigation at the recent annual meeting.

W. H. PODESTA has been appointed traveling passenger and freight agent of the Admiral Oriental Line, according to general agent T. J. Kehoe, 17 State street, New York.

ALFRED B. MONTGOMERY, until recently connected with the Philadelphia offices of the United States Lines, has been appointed a foreign representative for the American Express Company.

C. S. E. HOLLAND, of Houston, Texas, has been elected president for the 19th consecutive time, of the Intracoastal Canal Association at the annual meeting of the latter held in Houston.

JAMES HARE, until recently manager of the Baltimore office of the Southern Transportation Company, has been transferred to the main office at Philadelphia, due to the closing up of the Baltimore branch.

CAPTAIN ARTHUR J. HENRIQUES has resigned his position with the United States Treasury Department, Bureau of Internal Revenue, to take charge of the marine business of W. B. Richards & Company of New York.

JOS. J. NELIS, manager of the marine department of the Power Specialty Company, 111 Broadway, New York City, returned last month from an extended business trip to the west coast and through the Southern States.

A. J. BARNES, advertising and export manager for the Shepard Electric Crane & Hoist Company, recently took charge of the company's New York office as district sales manager. Mr. Barnes was formerly in the crane department of the Niles-Bement-Pond Company, coming to the Shepard Company in 1910 as a mechanical engineer. After spending three years in the drawing room with this company, he was placed in charge of a newly created advertising department, spending considerable time at Montour Falls, N. Y. He was charged with the responsibility of developing export sales and in addition to having been made the district sales manager at New York he is continued as the head of the advertising and export divisions. Mr. Barnes has taken a leading part in "putting over" a number of successful advertising and selling campaigns, and his congenial spirit has already won him a host of friends in the marine field.

A. J. Barnes

W. MERTON RICE has been appointed representative in charge of sales of marine and stationary Lombard Diesel oil engines at the recently established district sales office at 30 Church street of the Lombard Governor Company, Ashland, Mass.

K. WARREN HEINRICH, who recently resigned the position of secretary of the American Marine Association to become vice-president and sales manager of the Davis Engineering Corporation (formerly Row & Davis, Engineers), received his elementary training in marine engineering and naval architecture at the University of Michigan, and in the drafting rooms of the Great Lakes Engineering Works and the Detroit Twist Drill Company. Mr. Heinrich spent many years in the Michigan Naval Militia as an engineer officer, organizing the Seventh and Eighth Michigan Divisions which so ably distinguished themselves in the world war. Mr. Heinrich served in the United States Navy as an engineer officer for several years, later being assigned to the Naval Constructors corps, from which he resigned with the rank of Senior Lieutenant to enter the employ of the Bethlehem Shipbuilding Corporation at Bethlehem and later in the sales department at New York. He resigned this position in 1921 to become secretary of the American Marine Association, and his work in this connection and as secretary of the first American Marine Congress is well known. His resignation from the latter position became effective December 1.

K. W. Heinrich

Generated on 2024-09-12 12:03 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

ZAC T. GEORGE, Pacific Coast manager of the Luckenbach Steamship Company, has been elected chairman of the East Bound Intercoastal Conference, succeeding John Stubbs, whose three months' term has expired.

CAPTAIN DANIEL A. J. SULLIVAN, well-known shipmaster, Lieut. Commdr. U. S. N. R. F., and holder of the Congressional Medal of Honor, addressed the cadets of the schoolship *Newport* on "Ship's Business" on Wednesday evening, December 12.

ERNEST M. BULL, president of A. H. Bull & Company, and Robert F. Hand, assistant manager of the Standard Oil Company's marine department, have been made members of the executive committee of the American Steamship Owners' Association.

DAVID W. GREIG, formerly general manager of the Saginaw Shipbuilding Company, Saginaw, Mich., has been appointed naval architect and assistant to the general manager of the newly formed St. John Dry Dock & Shipbuilding Company, Ltd., of St. John, N. B.

CHARLES L. BISHOP, for many years assistant general freight agent of the Buffalo, Rochester & Pittsburgh Railroad, has been appointed general freight agent of the Panama-Pacific Line for western New York and will have headquarters at Rochester.

A. T. B. SHIELS has been appointed to succeed Captain J. F. Blain, resigned, as Northern Pacific Coast District Representative of the Bethlehem Shipbuilding Corporation. He will maintain the company's present offices at 422-23 Colman Building, Seattle, Wash.

PAUL A. FROHWEIN, assistant chief engineer for Gibbs Brothers, has been put in charge of the supervision of the former army transports' conversion to cargo ships for the Shipping Board at the Federal and Staten Island shipyards and the New York Navy Yard.

T. A. MORGAN, vice-president in charge of sales for the Sperry Gyroscope Company, Manhattan Bridge Plaza, Brooklyn, N. Y., who opened an office in Japan and returned to New York recently, is now directing the sales work at the company's office in Brooklyn.

COMMANDER FREDERICK C. BILLARD of the United States Coast Guard has been nominated by President Coolidge as commandant of the Coast Guard with the rank of rear admiral succeeding Rear Admiral William E. Reynolds who retires this month on account of age.

A. G. BATES, former vice-president of the Grace Lines, Inc., and prominently identified with shipping on both the Atlantic and Pacific for many years, will be the manager of the company's new freight service between the North Pacific and the west coast of South America, for which Norton, Lilly & Company will be general agents. The new service has been designated as the Pan-Pacific Line.

ANTOINE BORDES, for the past six years general representative for United States and Canada for the French Line, and the senior French Line official on this continent, has resigned, this taking effect December 1, and he is succeeded by Pierre de Malglaive, with the title of general manager for United States and Canada. Mr. de Malglaive, who arrived to take up his new duties early last month, was formerly general agent for freight traffic of the Compagnie Generale Transatlantique (French Line) in Antwerp, Belgium.

JOHN H. WALSH of the New Orleans Dock Board has been elected president of the National Association of Port Authorities. The vice-presidents elected were K. Spencer Smith, Jersey City; G. B. Hegardt, Portland, Ore., and T. L. Trembly, Quebec. The new board of directors is composed of Major General Lansing H. Beach, United States Army, engineer corps; A. J. King, Norfolk, Va.; B. B. Allin, Houston, Tex.; S. L. Prenter, Vancouver, B. C.; C. G. Colder, Los Angeles; H. V. Gurren, Chicago, and C. R. Thompson, Philadelphia.

OBITUARY

WILLIAM C. WOLFE, senior engineer of the Hughes Towing Line of Philadelphia, died on December 17. Mr. Wolfe began his steamboat career as a fireman on the steamer *Richard Willing* of the Ericsson Line under Elisha Webb. He was chief engineer of the first iron tug of the Hughes fleet.

ALBERT C. COLEMAN, superintending engineer of the Williams Steamship Company, 11 Moore street, New York, died on December 10, after a six weeks' illness. Mr. Coleman was 51 years of age and was for many years an engineer at Seattle, Wash., having been with the Williams Steamship Company about four years. He was well known in marine circles as an efficient engineer.

RICHARD LAWRENCE WALKER, a former executive of the Cunard Steamship Company, died at his home at 52 Cambridge Place, Brooklyn, in his sixty-sixth year, on November 25. Mr. Walker was born at Belleville, N. J., and at the age of fifteen the Ocean Steamship Company of Savannah employed him. He became New York agent for the company eighteen years later. In 1896 he held the position of traffic manager for the Panama Railroad. In 1906 he was appointed assistant manager of the New York office of the Cunard Line, which position he held until his retirement a year ago.

ANTONIO C. PESSANO, chairman of the board of directors of the Great Lakes Engineering Works of Detroit and Ashtabula, O., and one of the leading shipbuilders and engineers of the United States, died recently at his apartments in the Hotel Plaza, New York, at the age of 66. Mr. Pessano received his early education in the schools of Philadelphia, the Philadelphia high school and Franklin Institute of Technology. He was brought to Detroit in 1902 by a group of local capitalists who had acquired the old S. F. Hodge Riverside Iron Works at the foot of Rivard street. With this machinery plant as a nucleus, the Great Lakes Engineering Works was organized, with Mr. Pessano as president and general manager, and shipyards were established at Ecorse, below St. Clair, and a few years later at Ashtabula, O. In the war period Mr. Pessano spent much time in the east, taking numerous orders for ships, some for shipping interests in European countries. In 1920 the Great Lakes Engineering Works was liquidated and its properties were purchased by a new company of the same name, which Mr. Pessano formed from some of the interests which had been connected with the old company. He was made chairman of the board of directors of the new company, in which capacity he served until his death. Mr. Pessano was a member of the Society of Naval Architects and Marine Engineers, the American Society of Mechanical Engineers and the Engineers' Club of New York.

A. C. Pessano

Generated on 2024-09-12 11:59 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

The Month's Shipping and Shipbuilding News in Brief

Shipyard, Steamship and Port Activities and Other Notes of Interest in All Branches of the Marine Industries

Million Dollar Steamer Contracted For

THE contract for the construction of what is said to be the first seagoing passenger steamship ever built at Los Angeles Harbor has been awarded the Los Angeles Shipbuilding & Drydock Corporation by the Wilmington Transportation Company, of which William Wrigley, Jr., is chairman of the Board of Governors. It is understood that the vessel will cost approximately $1,000,000.

The new steamer, the keel of which is to be laid immediately, will have an overall length of 300 feet, beam of 50 feet, and will accommodate about 3,000 passengers. She will be driven by reciprocating engines, turning twin screws, developing a speed of 18 knots, steam to be supplied by four boilers. Delivery is promised for July 1st, next, and classification will be by the American Bureau of Shipping. The vessel will have every convenience and passenger innovation and when completed will be placed in the Los Angeles Harbor-Catalina Island run.

Bids Open Jan. 3 for Two Steel Hull Catamaran Ferryboats

THE Algiers Public Service Company, Inc., foot of Canal Street, New Orleans, La., will receive sealed proposals until 12 o'clock, noon, on January 3, 1924, for the construction and delivery of one and two steel hull catamaran type ferryboats. Plans and specifications are on file in the office of the company and may be obtained upon deposit of $20. R. P. Nolan is manager of the company. Delivery of the boats is to be at New Orleans.

The company, it is understood, is also planning three ferry houses, numerous bridge approaches, etc., for Canal Street and Third District ferries, the total amount to be spent in this marine work to be close to $350,000.

The proposed boats are to have a length of deck molded of 150 feet 6 inches, length between perpendiculars 144 feet, beam over deck 67 feet, beam of hulls molded 18 feet, distance between hulls 19 feet. The main deckhouse will be 68 feet long, 30 feet wide and there are to be two cabins on the boiler deck.

MAIN ENGINES

The main engines will be single cylinder, non-condensing type, with four balance poppet or piston type of valves, the cylinders to be 18 inches in diameter with a 6-foot stroke. Steam reversing gear shall be fitted complete.

There are to be two boilers, each 26 feet long by 50 inches in diameter, built for a working pressure of 175 pounds. Each boiler will contain four 8-inch flues and two 12-inch flues and there will be one 18-inch steam drum, 10 feet long, and two 15-inch mud drums, 10 feet long.

The paddle wheel will be 19 feet outside diameter over buckets and 17 feet 6 inches long over buckets. There are to be fourteen buckets, 24 inches wide.

The plans and specifications were prepared by Warren Johnson, Consulting Engineer, of New Orleans, La.

Atchison in Market for Freight Car Barge

The Atchison, Topeka & Santa Fe Railroad plans to buy a large freight car barge for use in San Francisco bay. The cost of the barge will be about $200,000.

New York Ferry Plans Under Revision

NEW plans and specifications for the construction of six steel ferryboats for the city of New York are in course of preparation it was learned recently. Following the rejection of bids taken on April 26 for the building of eight vessels, a revision of the plans, to provide for six steamers of a larger type is now before the Board of Estimate.

It is understood that the revised plans will call for a fleet of boats each having a length over guards of 150 feet; beam over guards 53 feet and propelled by reciprocating machinery. The former proposed vessels were to have had a length over guards of 140 feet with a beam over guards of 52 feet. Estimates were submitted on the latter group covering steam, electric and Diesel methods of propulsion, the Federal Shipbuilding Company having been the low bidder.

No date has yet been set for the receipt of tenders under the revised specifications.

Engineer Office at Wilmington, N. C., to Build New Steamer

MAJOR OSCAR O. KUENTZ, army engineer officer, Wilmington, N. C., is about to advertise for bids for the building of a stern-wheel river steamer to replace the snagboat *General H. G. Wright*, which was built in the year 1882.

The new snagboat to be built will have a steel hull 105 feet in length with a beam of 90 feet, the vessel having two decks, the second deck containing quarters for the crew.

The engineer department will use her almost exclusively for removing stumps from the upper Cape Fear River.

New Boats Planned

The Essex Transit Company, Ltd., of Ford, Ontario, is planning the construction of a new boat this winter to replace the one formerly operated and which is now being dismantled. The company will probably require several boats in the conduct of its sand and gravel business but the exact number of steamers or barges has not been determined.

Shipyard Facilities

The Union Shipbuilding Company of Baltimore is building a wharf 700 feet long, equipped with power capstans, electric power lines, air and water line, on the north side of their 5,000-ton Marine Railway Drydock.

Barge and Scows

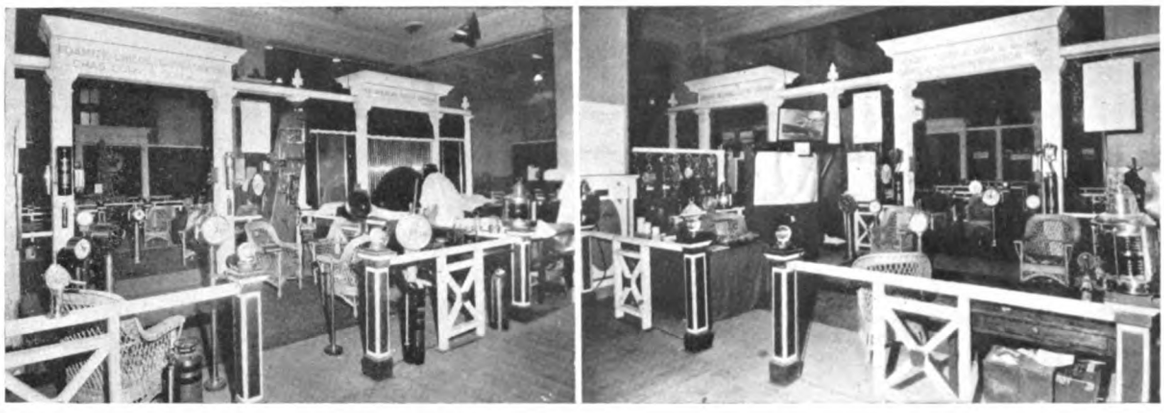
The United States Engineer Office, at Milwaukee, Wis., is preparing plans for two steel side dump scows and one steel barge.

To Build Tug

The Grace Line is reported as being in the market for a small tug for South American service.

Generated on 2024-09-12 12:02 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

EXHIBITS AT THE MARINE EXPOSITION



Tidewater Oil Company Issues Plans and Specifications for Two Additional Steel Hull Oil Barges

PLANS and specifications for the construction of two steel hull oil barges have been issued by the Tidewater Oil Company, 11 Broadway, prices being submitted on December 20. The boats are to have a length inside fenders of 194 feet, breadth molded 40 feet, depth molded amidships 12 feet, depth molded at ends 14 feet. The contract will probably cost over $100,000.

The barges are to be of the scow type with round corners and bilges built on the Isherwood system of longitudinal framing with the hulls subdivided by transverse bulkheads and a center line bulkhead into eight oil compartments. The barges are to be built and equipped to meet the requirements of the American Bureau of Shipping for harbor oil barges and are to have a capacity of 500,000 gallons of fuel oil.

The equipment will include four 10-inch towing bitts, five heavy pattern open chocks, eight heavy mooring cleats, two Providence hand power capstans, one 650-pound stockless anchor, 45 fathoms of ¾-inch chain cable, 45 fathoms of ¾-inch wire hawser, two 14-inch by 10½-inch by 18-inch horizontal duplex Wilson Snyder, or other improved make cargo pumps, each capable of discharging 700 gallons per minute at 85 per minute piston speed, with working steam pressure of 100 pounds per square inch.

Peabody Engineering Corp. Will Equip Two More Isthmian Liners

THE Peabody Engineering Corporation, New York, has received a contract for equipping the Isthmian Line steamers *Chickasaw City* and *City of Birmingham* with oil-burning equipment. The work of converting the vessels to oil burners will be carried out at the yards of the Federal Shipbuilding Company, Kearney, N. J. Each vessel is equipped with three 3-furnace Scotch boilers and a Howden draft installation of oil burners will be installed. The *Chickasaw City* will arrive at the Federal Yard early in January and the *City of Birmingham* later in the month.

Bethlehem Corp. and Kearfott Engineering Co. Get Contracts on Five Transport Conversions

The Bethlehem Shipbuilding Corporation has been awarded the contracts for a total of 42 pumps including air, centrifugal circulation, reciprocating refrigeration circulation, and reciprocating brine circulators, to be installed on the former transports *Marne, Cantigny, Ourcq, Tours* and *Aisne*, which are now undergoing reconditioning for passenger and freight service. It is understood that the contract will involve approximately $75,000.

For the same ships, the Kearfott Engineering Company, Inc., 95 Liberty Street, New York City, has received a contract from the Federal and Staten Island yards for about 130,000 pounds of Admiralty tubes, the order from the Staten Island plant also covering tubes for the transport which the Brooklyn Navy Yard is repairing and for whom the Staten Island yard is building the condenser. These condenser tubes will be made by the Chase Metal Works, of Waterbury, Conn.

Tonnage of American Merchant Marine Exceeds Eighteen Million According to Government Report

THE American merchant marine as of June 30, 1923, consisted of 27,017 vessels of all kinds, of 18,284,734 gross tons, according to the annual report to Secretary Hoover of Commissioner of Navigation D. B. Carson, released recently by the Department of Commerce. The gross tonnage on June 30 was 178,234 less than on the same date in 1922.

American vessels of 500 tons and over engaged in foreign trade numbered 1,958, totaling 8,441,892 gross tons, and 1,575 vessels of 4,661,896 gross tons were engaged in coastwise trade. Three-fourths of the total tonnage was owned by the United States Shipping Board.

Oil-burning vessels of over 1,000 tons almost doubled those burning coal in number and more than doubled the coal burners in tonnage—1,681 ships using oil fuel and 890 using coal. Fifty-two ships had internal combustion oil engines.

Seven hundred and seventy documented vessels were built during the fiscal year, aggregating 335,630 gross tons, compared with 845 of 661,232 tons built in the previous fiscal year.

Two hundred and ninety-eight vessels were lost during the year, 139 were sold to alien flags, and 628 were abandoned, their tonnage being: lost, 127,584; sold, 218,401; abandoned, 142,916.

Minor officers and seamen shipped, reshipped, and discharged during the year by shipping commissioners and collectors of customs were 583,110.

An important feature of the year's work was the extension of the use of radio apparatus. Including stations on government and commercial ships, there are now 21,967 transmitting radio stations in the United States and over 2,000,000 receiving stations.

Other achievements of the service were the counting of 6,142,081 passengers on excursion vessels and the prevention of 243 attempts to overload such vessels, and reporting for action 11,251 violations of the navigation laws. Revenues amounting to $1,688,786 were collected during the year.

Generated on 2024-09-12 12:24 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

American Marine Standards Committee Announces Subject Committee Personnel

THE sixteen subject committees already formed by the three technical committees of the American Marine Standards Committee have been definitely set to work. The scope of the work of each committee and the manner and stages of its development were discussed and generally agreed upon at a meeting of the hull details committees held in Philadelphia and at meetings of the engineering details and ship operation details committees held in New York during November.

The hull details and engineering details committees are to deal entirely with design and specifications. Comparatively few and simple subjects are taken up to start with, but as soon as the committee machinery, as far as now built up, is properly in motion, additional subjects will be assigned to the main committees and additional subject committees will be formed to take them up.

The results of the work of these committees are expected ultimately to decrease the cost of shipbuilding by simplification of details and elimination of waste and lost motions and also indirectly to decrease the cost of upkeep of ships by the same effects and the reduction of varieties of materials and fittings now used in construction and required for maintenance.

The tasks undertaken by the committees on ship operation details and supplies are of more direct interest to the operators in that these committees are commissioned to produce basic rules and instructions embodying the best ideas available not only for the most efficient and economical care and operation of ships and machinery as property but to bring about a better and uniform understanding of efficient and economical management of the ship as a business institution.

The subject committees now at work are as follows:

Hull Details

COMMITTEE ON AIR PORTS, DEAD LIGHTS AND DECK LIGHTS

John C. Craven, naval architect, Federal Shipbuilding Company, Kearney, N. J., chairman; H. F. Norton, naval architect, Newport News Shipbuilding and Dry Dock Company, Newport News, Va.; W. R. Bean, assistant naval architect, New York Shipbuilding Corporation, Camden, N. J.; J. W. Hudson, naval architect, Sun Shipbuilding and Dry Dock Company, Chester, Pa.; W. D. Fletcher, technical assistant, Standard Transportation Company, New York; F. L. Justison, assistant to president, Delaware Marine Manufacturing Company, Wilmington, Del.; Edward C. Gillette, superintendent of naval construction, Bureau of Lighthouses, Department of Commerce, Washington, D. C.; James R. Harrison, associated with Theodore E. Ferris, naval architect, New York; Walter L. Green, Jr., superintending engineer, Luckenbach Steamship Company, Brooklyn, N. Y.

SUBJECT COMMITTEE ON BITTS AND CLEATS

E. L. Stewart, naval architect, Standard Oil Company (N. J.), New York, chairman; A. B. Brown, naval architect, Sparrows Point Plant, Bethlehem Shipbuilding Corporation, Ltd., Sparrows Point, Md.; Horace H. Thayer, consulting naval architect, 119 South Fourth street, Philadelphia, Pa.; Commander H. S. Howard (CC), U. S. N., in charge of new design, Bureau of C. and R., U. S. Navy Department, Washington, D. C.; George Matlack, foundry superintendent, the Wm. Cramp & Sons Ship and Engine Building Company, Philadelphia, Pa.; John C. Craven, naval architect, Federal Shipbuilding Company, Kearney, N. J.; John Miller Ferguson, chief draftsman, Merchants' and Miners' Transportation Company, Baltimore, Md.

SUBJECT COMMITTEE ON CHOCKS

W. R. Bean, assistant naval architect, New York Shipbuilding Corporation, Camden, N. J., chairman; H. F. Norton, naval architect, Newport News Shipbuilding and Dry Dock Company, Newport News, Va.; Axel Rossel, chief constructor, Gibbs Brothers, Inc., New York; W. D. Fletcher, technical assistant, Standard Transportation Company, New York; Lieut. Comdr. F. A. Hunnewell, U. S. Coast Guard Service, constructor for hulls, Washington, D. C.; John Miller Ferguson, chief draftsman, Merchants' and Miners' Transportation Company, Baltimore, Md.; Walter L. Green, Jr., superintending engineer, Luckenbach Steamship Company, Brooklyn, N. Y.

SUBJECT COMMITTEE ON HAWSE AND MOORING PIPES

J. W. Hudson, naval architect, Sun Shipbuilding and Dry Dock Company, Chester, Pa., chairman; E. L. Stewart, naval architect, Standard Oil Company (N. J.), New York; Commander H. S. Howard (CC), U. S. N., in charge of new design, Bureau of C. and R., U. S. Navy Department, Washington, D. C.; Captain John O. Walton, constructor, U. S. Coast Guard Service, Washington, D. C.; W. R. Bean, assistant naval architect, New York Shipbuilding Corporation, Camden, N. J.; Axel Rossel, chief constructor, Gibbs Brothers, Inc., New York; John C. Craven, naval architect, Federal Shipbuilding Company, Kearney, N. J.

Engineering Details

SUBJECT COMMITTEE ON INSULATION

H. C. Higgins, district agent, division of operations, U. S. Shipping Board Emergency Fleet Corporation, Philadelphia, Pa., chairman; Fred F. Turner, general manager, American Insulation Company, Philadelphia, Pa.; H. P. Barnes, Jr., manager, Keasbey and Mattison Company, Philadelphia, Pa.; B. C. McClure, general manager, insulation and power specialties department, Johns-Manville, Inc., New York; John P. Dubois, sales manager, Ehret Magnesia Manufacturing Company, Inc., Valley Forge, Pa.; John F. Metten, chief engineer, The Wm. Cramp and Sons Ship and Engine Building Company, Philadelphia, Pa.

SUBJECT COMMITTEE ON SHAFTING

W. W. Smith, chief engineer, Federal Shipbuilding Company, Kearney, N. J., chairman; J. C. Shaw, assistant chief engineer, The Wm. Cramp and Sons Ship and Engine Building Company, Philadelphia, Pa.; Paul A. Hansen, chief draftsman, New York Shipbuilding Corp., Camden, N. J.; Joseph Hecking, surveyor, American Bureau of Shipping, New York.

SUBJECT COMMITTEE ON CONDENSER TUBE AND FERRULE STOCK SPECIFICATIONS

Captain O. B. Newman, engineer-in-chief, U. S. Coast Guard, Washington, D. C., chairman; Frank Van Vleck, supervising marine engineer, War Department, Washington, D. C.; Dr. G. C. Holder, chief chemist, Wheeler Condenser and Engineering Company, Carteret, N. J.; W. H. Bassett, technical superintendent and metallurgist, The American Brass Company, Waterbury, Conn.; D. W. R. Morgan, engineer, condenser department, Westinghouse Electric and Manufacturing Company, Philadelphia, Pa.

SUBJECT COMMITTEE ON DESIGN OF CONDENSER TUBE FERRULES

R. Wariner, chief engineer, Bethlehem Shipbuilding Corporation, Ltd., Quincy, Mass., chairman; M. L. Katzenstein, manager marine department, Worthington Pump and Machinery Corporation, New York; S. P. Gledhill, marine engineer, Barber Steamship Lines, Inc., New York; F. C. Williams, superintending engineer, Cosmopolitan Shipping Company, Inc., New York; M. L. Spetry, Jr., Scovill Manufacturing Company, Waterbury, Conn.

Ship Operation Details and Supplies

SUBJECT COMMITTEE ON CARE AND OPERATION OF BOILERS

H. C. Higgins, district agent, division of operations, U. S. Shipping Board, Philadelphia, Pa., chairman; James Mac Donald, machinery inspector, U. S. S. B. E. F. C., Philadelphia, Pa.; Joseph Wengland, assistant superintending engineer, Southern Pacific Lines, New York.

SUBJECT COMMITTEE ON CARE AND OPERATION OF MAIN ENGINE AND MAIN CONDENSER

W. M. Bunker, port engineer, United States Lines, Hoboken, N. J., chairman; C. E. Klitgaard, superintendent of construction and repairs, Standard Oil Company, (N. J.), New York; S. Coates, assistant marine superintendent, Standard Transportation Company, New York; N. Christiansen, superintendent of machinery, Newport News Shipbuilding and Dry Dock Company, Newport News, Va.; John W. Gray, assistant to general manager, Newport News Shipbuilding and Dry Dock Company, Philadelphia, Pa.

SUBJECT COMMITTEE ON CARE AND OPERATION OF ENGINE ROOM AUXILIARIES, INCLUDING PIPING, AUXILIARY CONDENSERS, AND CARGO PUMPING PLANTS

Walter L. Green, Jr., superintending engineer, Luckenbach Steamship Company, Brooklyn, N. Y., chairman; John Wright, marine superintendent, Pan American Petroleum and Transportation Company, New York; N. Christiansen, superintendent of machinery, Newport News Shipbuilding and Dry Dock Company, Newport News, Va.; Charles Jackson, superintendent engineer, Texas Company, New York; C. E. Klitgaard, superintendent of construction and repairs, Standard Oil Company, (N. J.), New York; W. S. Wilkinson, engineer-in-charge of auxiliaries, Bethlehem Shipbuilding Corporation, Ltd., New York.

SUBJECT COMMITTEE ON CARE AND OPERATION OF DECK MACHINERY

George B. Drake, manager marine department, Texas Co., New York, chairman; J. Hamilton Moore, superintending engineer, United Fruit Company, New York; W. S. Wilkinson, engineer-in-charge of auxiliaries, Bethlehem Shipbuilding Corporation, Ltd., New York; P. McIntosh, superintending engineer of Grace Line, Inc., New York.

SUBJECT COMMITTEE ON CARE AND OPERATION OF OIL BURNING APPARATUS AND HANDLING OF FUEL OIL

N. J. Pluymert, marine superintendent, Standard Transportation Company, New York, chairman; G. D. Bennett, port engineer, Standard Oil Company, (N.J.), New York; George P. Haynes, chief engineer, Todd Oil Burner and Engineering Corporation, New York.

SUBJECT COMMITTEE ON LUBRICATION

James Kennedy, marine superintendent, Gulf Refining Company, New York, chairman; R. P. Tobin, chief engineer, technical department, Vacuum Oil Company, New York; P. H. Harwood, marine manager, Pan American Petroleum and Transportation Company, New York; Harold B. Joseph, marine lubricating engineer, Texas Company, Philadelphia, Pa.; John Schlosser, superintending engineer Sun Oil Company, Marcus Hook, Pa.

SUBJECT COMMITTEE ON OPERATION OF SHIP

R. F. Hand, assistant manager, marine department, Standard Oil Company, (N. J.), New York, chairman; Howard N. Tait, port superintendent, C. H. Sprague and Son, Boston, Mass.; Captain A. G. Dunning, port captain, United Fruit Company, New York; Captain Wm. Park, general superintendent, Clyde-Mallory Steamship Company, New York; H. M. Wesson, superintending engineer, United American Lines, Inc., New York; D. A. Whamond, purchasing agent, The New York and Porto Rico Steamship Company, New York; R. C. Thackara, vice-president, Luckenbach Steamship Company, Inc., New York; Theodore H. Brown, School of Business, Columbia University, New York.

SUBJECT COMMITTEE ON CARE AND MAINTENANCE OF HULL AND FITTINGS

W. B. Ferguson, acting assistant superintendent-in-charge of shipwork, Newport News Shipbuilding and Dry Dock Company, Newport News, Va., chairman; W. B. Caswell, hull inspector, Southern Pacific Company, New York; Captain Frank Downs, port captain, Standard Oil Company (N. J.), New York; Captain Henry M. Seely, supervising inspector, second district, U. S. Steamboat Inspection Service, New York; Captain H. L. Wyman, U. S. N., assistant to chief of Bureau of Engineering, Navy Department, Washington, D. C.; L. B. Shuman, principal assistant engineer, U. S. District Engineer's Office, Philadelphia, Pa.

The work to be taken up by each committee is implied by its title. The first meetings of the committees on insulation and on care and operation of boilers have already been held and their work is in progress. Meetings of all of the other committees are to be held as soon as sufficient data are collected.

The Division of Simplified Practice invites any one having any suggestion to offer regarding the work of any of the committees to forward same to the chairman of the committee. Further information regarding the organization, rules for guidance of committees, etc., can be had by request to the Secretary of the American Marine Standards Committee, Room 708, Commerce Building, Washington, D. C.

Marine Engineers Meet for Annual Convention in Washington on Jan. 21

THE National Marine Engineers' Beneficial Association will hold its forty-ninth annual convention at Washington, D. C., during the week of January 21 to 26, 1924, with headquarters at the Franklin Square Hotel.

The Supply Men's Association will provide entertainment for the members of the Beneficial Association.

Generated on 2024-09-12 12:01 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

TRADE PUBLICATIONS

REVIEW OF ELECTRICAL DEVELOPMENTS.—The General Electric Company, Schenectady, N. Y., has arranged a bulletin for general publication outlining in brief the extensive development work carried on in the electrical industry during 1923 with special reference to equipment contributed by this company to the general progress. Turbine-generator improvements for power plants and marine propelling units have been made; a mercury boiler has been made practicable; great strides have occurred in the development of radio apparatus; steam railroad electrification has progressed as well as a great variety of other electrical lines improved upon.

ENGINEERING ACHIEVEMENTS.—The Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa., has summarized in bulletin form its work during the year, including practically every possible field where electrical equipment is used. Investigation and experimental work have been carried on exhaustively for the improvement of electrical products with the results as outlined in this bulletin which was primarily prepared for reprint in the trade and technical press.

CORRECT METHOD OF BURNING FUEL OIL.—H. A. Anderson, chief engineer of the Mahr Manufacturing Company, has prepared a treatise on the correct method of burning fuel oil, which is being distributed in bulletin form by the company. The book takes up methods of combustion utilizing various type atomizers and burners, the possibilities of obtaining high temperatures with the combustion type burner, methods of venting furnaces for maximum results, types of furnace best adapted to various combustion requirements, systems of fuel feed,—in fact complete general information on the problem of combustion utilizing the equipment of this company.

HIGH TEMPERATURE HEAT INSULATION.—The Phillip Carey Company, Lockland, Cincinnati, Ohio, has announced a series of technical bulletins on the performance and adaptability of heat insulating materials, the first of which, Bulletin No. 101, is now being distributed. A convenient loose-leaf binder for assembling these bulletins and other data on heat insulation will be furnished on request to those interested in maintaining a file of such information. Bulletin No. 101 makes an analysis of the problem of heat insulation which has arisen with the tendency toward higher steam pressures and temperatures in various industrial processes. The types of insulating material best adapted to meet the requirements of industry are described together with an outline of their characteristics. A table of efficiencies, savings and unit losses of high temperature heat insulation is included in the bulletin.

"THE PAINTER'S EAGLE."—The quarterly issue of "The Painter's Eagle" dated December 9 and published by the Eagle Picher Lead Company, Chicago, is known as the "Sales Managers' Plant Tour Edition" and contains the itinerary and details of the eighteenth anniversary of the sales managers' plant tour.

FLEXIBLE COUPLINGS.—Bulletin No. 37 issued by Smith & Serrell, Newark, N. J., should prove of interest to all those interested in flexible couplings for geared turbine and high-speed motor drives, as this bulletin describes in some detail the new high-speed type Francke flexible coupling. A new pressed steel type coupling for auxiliary drives is also described. Advice is contained in the bulletin on lubrication and on installing and operating direct connected machines.

NEW CALENDAR.—The France Packing Company, Tacony, Philadelphia, Pa., has issued its calendar for 1924 which will be sent on request by this company to any of our readers.

SIDE HANDLE DRILL.—A two-page bulletin describing the new 5/16-inch capacity side handle equipped drill made by the Hisey-Wolf Machine Company, Cincinnati, O., has recently been distributed. This machine is designed with a Hisey-built universal motor and ball bearings which are on every part that rotates. The quick cable connector is also an important feature in that cable repairs and renewals can be made without dismantling the machine.

THE VICTOR JET CONVEYOR.—The jet type conveyor for ashes, clinkers, combustion slag, coke, soot and other disintegrating materials is described in a pamphlet sent out by the Victor Engineering Company, Inc., Philadelphia, Pa. It is stated in this catalog that this conveyor requires the lowest possible consumption of steam or compressed air; that the maintenance cost in liners and pipes has been reduced to a minimum; that fittings have been improved upon in design to facilitate the inspection and easy replacement of nozzles and liner sections and that objectionable dust, noise and the like have been eliminated.

SELF-CONTAINED REFRIGERATING UNITS.—Bulletin No. 70 of the York Manufacturing Company, York, Pa., illustrates and describes the self-contained refrigerating machine produced by this company. Each section of the system is taken up in detail, including the ammonia compressor, cylinders, crank case and base of the machine, the crank shaft and connecting rods, die cast bearings, the outboard bearing, suction strainer, lubrication, condenser receiver, safety devices and the like. Illustrations are also given of various practical applications of the apparatus.

CONDENSER TUBES.—An authoritative discussion and specifications of Anaconda condenser tubes have been prepared by the American Brass Company, Waterbury, Conn., taking up tubes from the raw state to the finished product. The physical characteristics of the tubes and their properties and tests are considered in this treatise.

MOTOR CONTROL APPARATUS.—A new issue of C-H bulletins on electric controlling devices has been sent out by the Cutler-Hammer Manufacturing Company of Milwaukee, Wis. The construction of many of the controllers listed in previous issues of the bulletin and revised in this issue has been improved upon; probably the greatest advance being in the line of multiple switch starters, regulators and push button stations. Much of the apparatus has been materially changed in an endeavor to decrease the multiplicity of types formerly manufactured in accordance with the conservation program advocated by Herbert Hoover, secretary of the United States Department of Commerce. This problem will be strongly emphasized in further issues of C-H bulletins and the hope is expressed that such a program will continue to improve the quality of the company's apparatus and the efficiency of its service.

ELECTRIC MOTORS.—How to choose and use electric motors is the thought developed in a booklet published by the Reliance Electric & Engineering Company, Cleveland, O. The booklet deals with motor operation, the problem of installing the power supply; power requirements in a given plant; cost of motors, whether the drive should be of the individual or group type; the method of figuring power; motor installation; protection; the proper size motors and numerous other items a knowledge of which is necessary in properly equipping and operating a plant.

ATWOOD PIPING MANUAL.—A catalog dealing with the history, design, specifications and materials used in piping systems has been prepared by the Pittsburgh Valve Foundry & Construction Company, Pittsburgh, Pa. The Power Piping Manual contains the fundamental facts pertaining to the materials, construction details, drawings and valuable tables of data of interest to engineers in the power plant field.

RIVETING.—A pamphlet containing supplemental information pertaining to rivets and riveting has been issued by the S. Severance Manufacturing Company, Glassport, Pa., to be added to the data book on rivets published by the same company in 1920. This pamphlet takes up the subject of the requirements for good rivets, details of riveting the penstocks of the Niagara Falls Power Company at Niagara Falls, N. Y., a table for locating the first rivet of a gusset connection, proper oil tank riveting, special problems connected with the riveting of airships of the type of the *Shenandoah*. It also deals with the protection of air tools and with the production of the pneumatic tools.

CAST IRON WELDING.—The subject of cast iron welding by the oxy-acetylene process has been dealt with at some length in a book compiled by T. C. Fetherston of the publicity department of the Linde Air Products Company, N. Y. The key note of successful cast iron welding is a complete understanding of the necessity for adequate pre-heating, proper welding practices and suitable annealing. The application of advanced methods in this work by many shops throughout the country is resulting in great savings in money, labor and time. The Linde Air Products Company offers this booklet as an evidence of its desire to give those interested in cast iron welding every facility and service in the use of its products. A great variety of cast iron welding jobs with suitable detailed descriptions and illustrations are contained in the book.

MARINE SIGNALING.—A general catalog bulletin issued by Charles Cory & Son, Inc., New York, has been issued so that prospective purchasers of marine equipment may become acquainted with the Cory line of marine signaling, communicating and lighting equipment. A brief outline of the various systems is given. It should be remembered, however, that the subjects are condensed and do not contain illustrations of all apparatus manufactured for a given system. Supplementary bulletins have been prepared which deal with the individual subjects in a more intensive way.

BUSINESS NOTES

Moore & McCormack Company has established an office at Seattle.

The Bethlehem Shipbuilding Corporation, Ltd., Union Plant, has announced the removal of their sales offices at San Francisco to 1060 Matson Building, 215 Market Street, San Francisco, Cal.

The Chicago Pneumatic Tool Company, New York, announces the General Machinery Company, of Spokane, Wash., as their agents in the eastern part of the state of Washington and the northern part of Idaho.

Generated on 2024-09-12 12:01 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Foreign Shipping and Shipbuilding Activities

U. S. Naval Officers Visit Smulders Yard

DURING a recent visit of the United States cruiser *Pittsburgh* in Holland, some of her officers under charge of Lieutenant R. T. Dickinson paid a visit to the Werf Gusto, Firma A. F. Smulders, at Schiedam, where under the direction of Messrs. Frans Smulders, August Smulders

200-Ton Floating Crane

B. Sc., and N. W. Conyn, they were conducted over the plant.

In addition to the coaling vessels and coaling elevators for bunkering sea-going vessels, bucket and suction dredgers and excavators, which this company constructs, the visitors were especially interested in the derricking and revolving floating crane at the plant. The different movements of the crane, such as slewing, derricking and hoisting are controlled by one man only and the illustration shows the crane in the act of hoisting a 150-ton steel lighter on to the slipway.

SHIPYARD, THREE RIVERS, QUE.—Canada Steamship Lines, Ltd., Victoria Square, Montreal, will take bids early in 1924 for constructing a shipyard at Cap de Madeline near Three Rivers.

How the New French 33-Knot Cruiser Duguay-Trouin Will Look When Completed

Clyde Yards May Build 19 Motor Driven Ships

Word comes from London that the shipbuilding concerns established on the Clyde have received a Government guarantee under the Trades Facilities Act of £1,800,000 for the construction of nineteen motor-driven ships.

Steamer Voltaire Enters South American Service

LATE in November the new twin-screw Lamport & Holt, Ltd., steamship *Voltaire*, intended for passenger and mail service between New York and South American ports, left the yard of her builders, Messrs. Workman, Clark & Company, Ltd., at Belfast, Ireland, for her official trials.

Her principal dimensions are: Length overall, 526 feet; breadth, 64 feet; depth, 43 feet, with a displacement of over 19,000 tons. Accommodations are provided for 300 first class, 150 second class and 230 third class passengers.

PROPELLING MACHINERY

SHIPYARD, THREE RIVERS, QUE.—Canada sets of quadruple expansion, balanced engines developing 7,500 indicated horsepower. Four single and two double-ended circular multi-tubular boilers fitted with forced draft equipment, superheaters and oil burnnear Three Rivers.

New Lamport and Holt Liner Voltaire

Diesel Yacht Vanadis Launched in Germany

THE ocean going Diesel Yacht *Vanadis*, designed by Cox & Stevens, naval architects, New York, was successfully launched at the yard of the builders, Fried. Krupp, Kiel, Germany, on November 15,

Launching of Diesel Yacht Vanadis at Kiel

and will be delivered to her owner Mr. C. K. G. Billings, of New York, during this month.

The *Vanadis* is by far the largest yacht of her type, her dimensions being length overall 240 feet, beam 35 feet, draft 14 feet. She is propelled by twin screws driven by two Diesel engines which develop 1,800 horsepower and will give a speed of better than 14 knots. The fuel and storage capacity is sufficient for a cruise of 12,000 miles.

The Belgian Government is to build a dry dock costing over $1,000,000. Bids are asked from American concerns.

Generated on 2024-09-12 12:02 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Marine Construction News of the Month

Ship Contracts — New Ship Concerns and Shipyard Improvements—Terminal Projects—Government Contracts

SHIPBUILDING AND REPAIRS

Repairs at Philadelphia, Pa.—The British steamship Miraflores has been taken to Philadelphia for repairs.

Steamer Drydocked, Portland, Ore.—The damaged steamer Oregon has been drydocked at Portland to undergo repairs.

Dredge Repairs, Tampa, Fla.—The United States dredge Sarasota has been taken to Tampa for a six weeks' overhauling.

New Tank Top, Buffalo, N. Y.—The steamer J. C. Morse has been placed on the West Shore drydock, Buffalo, for a new tank top.

Rudder Damage, Duluth, Minn.—The steamer W. H. Warner, which recently struck her stern, is having her rudder repaired.

Contract Placed, Baltimore, Md.—Theodore H. Rohde, Inc., received the contract on the Shipping Board steamer West Isleta, at $2,220.

Freighter Drydocked, Oakland, Cal.—The freighter Harold Dollar has been drydocked at the Moore plant for general cleaning and painting.

Plate Repairs, Ashtabula, Ohio.—The steamer James Laughlin has been placed on drydock at Ashtabula for repairs to seven damaged plates.

Bottom Damage, Mobile, Ala.—The San Gil has been taken to the Todd Shipyard at Mobile for repairs to bottom sustained as a result of recent grounding.

Extensive Engine Repairs, Philadelphia, Pa.—The Cramp Shipbuilding Company has received the contract for extensive engine repairs to the tug Southwark.

Dump Scows, Philadelphia, Pa.—The city plans the purchase of six steel hull dump scows, $120,000. Engineer, c/o Department of Docks, Wharves and Ferries, City Hall.

Tug Launched, Camden, N. J.—The river tug Arthur has been launched by the New York Shipbuilding Corporation, Camden, for the American Dredging Company.

Damaged Steamer Drydocked, Chester, Pa.—The steamer Commercial Scout, recently damaged, has been drydocked at the Sun Shipbuilding & Drydock Company's yard.

Cutter Overhauling, Philadelphia, Pa.—The boarding cutter Governor Pennypacker has left her station at Marcus Hook for the Cramp Shipyard, where she will be generally overhauled.

New Propeller, Seattle, Wash.—The steamship Andrea F. Luckenback was drydocked at Seattle recently to have her propeller replaced, as a result of fouling on an obstruction in the Columbia River.

Contract Awarded, Mobile, Ala.—The Alabama Drydock & Shipbuilding Company, Mobile, Ala., has received the contract for dismantling the Colthraps, of the Shipping Board, and removing the engines, $5,000.

Bids for Pump, Philadelphia.—The Ellicott Machine Corporation, of Baltimore, Md., was low bidder at $5,160 and 100 days' time for a dredging pump for the United States Engineer Office, Philadelphia, Pa.

Repairs to Lighthouse Tender, New Orleans.—The Lighthouse Superintendent at New Orleans, La., has awarded a contract to the Jahncke Dry Docks, Inc., New Orleans, at $5,257, for repairs to the tender Camelea.

Tug Raised, Niagara River, N. Y.—The Great Lakes Dredge and Dock Company, of Tonawanda, has raised the tug Craig from the channel in the Niagara River where it sank when rammed by the steamer Zillah on November 28.

Ship Order, England.—Word comes from London that Captain Troup, manager of the Canadian Pacific Railway Steamship Service on the Pacific Coast, is in England to place orders for two new vessels for the Victoria-Seattle-Vancouver traffic.

Vessel to Be Put in Condition, West Coast.—The recently purchased Admiral liner Nanking will be put in condition for service between San Francisco, Seattle and Los Angeles, at an approximate cost of $150,000, according to reports from San Francisco.

Steamers Repairing, San Francisco, Cal.—Mexican States Line steamer Guerrero has been placed on the Bethlehem ways for drydocking, cleaning and painting, and the Pearl Shell, of the Shell Company, is also at the same yard for a general overhauling.

Ship Work, Mobile, Ala.—The Alabama Drydock & Shipbuilding Company is engaged in the following work: Scraping and painting the steamship Baldbutte; engine and boiler room repairs on the steamship West Hardaway; and miscellaneous repairs to the steamship Hagan.

Miscellaneous Repairs, Buffalo, N. Y.—The Buffalo Drydock Company has received the contracts for repairs to a dump scow owned by the Empire Engineering Corporation for miscellaneous bottom repairs and the steamer A. T. Kinney, of the Kinney Steamship Company.

Yacht Refitting, Jacksonville, Fla.—The all-steam yacht Ripple, said to be the largest and most magnificent boat of its kind yet docking in Jacksonville, is at the plant of the Gibbs Gas & Engine Company for refitting preparatory to a long cruise to South American ports.

Extensive Work on Barge, Norfolk, Va.—The sail barge Portland, of the Southern Transportation Company, has been towed to the Colonnas Marine Railway to undergo repairs. The barge's mainsail and foresails were carried away in a severe storm and other damage was sustained.

Shipyard Work, Buffalo, N. Y.—The tug Craig, sunk recently in the Niagara River channel, has been raised and was placed in the Riley Drydock at Buffalo on December 11 for repairs. The same company is also reconditioning the Tonawanda-Grand Island Ferry for winter service.

Bids for Gasoline Launch, Mobile, Ala.—The United States Engineer Office, at Mobile, opened bids on December 27 for one gasoline launch complete with engine and fully equipped, and the United States Engineer Office at Philadelphia will receive bids until January 9 for one wooden scow.

Old Ship Refitting, Mobile, Ala.—It is understood that the steamship Colthraps, which has been towed to Mobile from Pensacola, will be repaired, conservative estimates being placed at nearly $100,000. A year ago September the vessel caught fire in Pensacola bay and has been lying idle up to the present.

Ship Work, San Francisco, Cal.—The Bethlehem Shipbuilding Corporation has received the contracts for the following work: Steamer Mexico, of the Mexican Navigation Company, general overhauling, river steamer Gold, general repairs, and Standard Oil Company's tanker F. H. Hillman, drydock for overhauling.

Fire Control System and General Overhauling, Brooklyn, N. Y.—The West Virginia, of the Atlantic fleet, recently commissioned at Newport News, is having a fire control system installed at the Brooklyn Navy Yard, at a cost of $300,000. The destroyer tender Denebola will be generally overhauled at the same yard.

Added Ferry to Service, British Columbia.—The Canadian Pacific Railway Company, British Columbia coast steamship service, has added the automobile and motor ferry Motor Princess to its fleet. This vessel has a gross tonnage of 1,242 and is operated during the spring between Sydney, B. C., and Bellingham, Washington.

Yachts Reconditioning, Norfolk, Va.—The Taylor Marine Railway has been very busily occupied with work on the following yachts: The Conewago, repairs to several bent propeller blades; the Mimi B. No. 2, repairs to engine, etc.; Florinda, bottom scraping; the Clare, minor repairs; Everglades, general overhauling, and the General Wicks, general repairs.

Cramp Activities, Philadelphia, Pa.—The Cramp Shipbuilding and Drydock Company is engaged in the following work: Shipping Board steamship Eastern Victor, general repairs; schooner Eugenie Owen Mackay, operated by T. H. Warren as agent, painting and bottom work, and several miscellaneous river craft are tied up at the plant awaiting attention.

Steamer Dismantled, Salem, Mass.—The steamer City of Rockland, which went ashore on Dix Island in the Kennebec River a few months ago, has been sold to the W. E. Betts & Company, of Salem, after having been abandoned by the owners to the insurance companies. It is reported that the W. E. Betts & Company will dismantle the ship and then burn the hull.

Contract Awarded, Oakland, Cal.—The Moore Drydock Company, as low bidder, has received the contract for repairs in excess of $10,000, to be carried out on the Pacific Mail liner President Pierce. The tenders were: Moore Drydock Company, $10,543; Bethlehem Shipbuilding Corporation, $11,190; General Engineering, $12,045, and the United Engineering Company, $13,680.

Low Bidder, San Francisco, Cal.—At the opening of tenders for engine, boiler and hull repairs to be completed on the United States transport Meiggs, the Neptune Machine Works was low bidder. The following prices were submitted: Neptune Machine Works, $1,543; Crowley's, $1,636.50; Bethlehem, $1,829; General Engineering, $2,109, and the Moore Drydock Company, $2,540.

Steamers Overhauling, Great Lakes.—The William Siemens has been repairing at the Lorain shipyard and the steamer P. Roberts, Jr., has been placed on drydock for a general overhauling. Steamer Fontana has been docked at Manitowoc for repairs to some bottom damage, and the steamship J. J. Turner, which blew out her high pressure cylinder head at Duluth recently, is at the Duluth yard for repairs.

Shipyard Work, Buffalo, N. Y.—The Buffalo Drydock Company, Buffalo, N. Y., is engaged in installing a new wheel, new tail shaft, replacing two plates on the bottom and scraping and painting the entire bottom of the steamer Tionesta, of the Great Lakes Transit Corporation's passenger fleet. The same company received the contract for removing three plates, one to be renewed, on the steamer North Sea of the same line.

Transport Repairs, San Francisco, Cal.—The General Engineering and Drydock Company submitted the lowest tender for the work of renewing the air ducts and engine repairs to the Army transport Thomas, the bids being as follows: General Engineering, $2,772; Neptune Machine Company, $2,806; Bethlehem Shipbuilding, $2,847; Main Iron Works, $4,020; Theodore Smith, $4,070; Columbia Machine Works, $4,392, and the Crowley Shipyards, $4,577.

Shipyard Activities, San Francisco, Cal.—The Bethlehem Shipbuilding Corporation has received the following contracts: Matson steamer Lurline, rudder work, stern plating repairs and other reconditioning; steam schooner Everett, repairs to tailshaft; Mexican steamer Guerrero, general repairs; lumber carrier H. W. Baxter, cleaning and general overhauling; steamer Olympic, of the Wood Lumber Company's fleet, new propeller fitted; W. S. Miller, Standard Oil Company's fleet, cleaning and painting.

Generated on 2024-09-12 12:20 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Steamer to Be Launched, Sparrows Point, Md.—The combination freight and passenger steamer New York will be launched on January 12 from the Sparrows Point plant of the Bethlehem Shipbuilding Corporation for the Eastern Steamship Line, according to reports from Baltimore. The new vessel will be placed on the Eastern Steamship Company's run between New York and Boston, and is sister ship of the Boston, launched several weeks ago.

Recent Contracts, East Coast.—Some of the recent contracts awarded to East Coast yards are: Shipping Board steamer Eastern Star, general overhauling, to Alderton Yards, $6,100; Princess May, of the Di Giorgio Line, bids submitted for which ranged from $7,000 to $14,000; the Munson liner American Legion, to Fletcher Yard, Hoboken, at $4,500, and the excursion steamer Mandulay, overhauling to be done at the Morse yards, at a sum of between $12,000 and $15,000.

Ship Contracts, Mobile, Ala.—The Alabama Dry Dock & Shipbuilding Company has been awarded the following contracts: Barge Tuscaloosa, rudder and propeller repairs; steamship Afoundria, general repairs; Norwegian steamer Erato, rudder stock repairs and installation of new wooden floor in coal bunkers; schooner Hope Sherwood, repairs and painting; schooner Alpena, repairs to steering gear and rudder repairs; raised launch Gypsy, frames re-inforced and bottom and sides painted; barge Mobile, repairs, and the British steamship Kabinga, miscellaneous repairs.

Moore Activities, Oakland, Cal.—The Moore Drydock Company of Oakland is actively engaged in many ship repair contracts. Besides installing a new tail shaft and making engine repairs on the President Pierce, the company is making extensive repairs to the hull of the lumber carrier Brookings; putting new stern frame on steam schooner Cascade, and generally overhauling the steamer Midway and steam schooner J. H. Baxter. The following are berthed for various work: Schooner Samar, motorship La Merced, tug Henry J. Biddle, tanker Frank H. Buck, steamer Wellesley, Standard Oil carrier Tachee, motorship Mount Baker, tanker Mericos Whittier, steamer Lehua, bark B. P. Cheney, power schooner Carolyn Frances, steamer Nile and barkentine City of Sydney. President Joseph A. Moore has announced that there are fifteen hundred men now engaged in the various departments of the plant, the largest number since the war-time contracts were completed.

SHIPYARDS AND DRYDOCKS

Cranes to Be Sold, Chester, Pa.—The Merchant Shipbuilding Corporation offers for immediate sale but subject to prior sale the following cranes: Seven electric driven open portal tower cranes and three electric driven gantry cranes. These cranes are particularly adapted for storage yards, loading docks, coal docks, piers, steel mills and many other heavy hoisting purposes.

Shipyard Sold, Seattle, Wash.—The Shipping Board has approved the sale of the Skinner & Eddy shipbuilding plant and yard at Seattle, the purchasers being the Port Commissioners of Seattle. An agreement has been made whereby the Shipping Board vessels will be accorded free docking, wharfage and storage facilities at the yard. Equipment and supplies at the yard were not included in the sale and will be offered for sale later.

Drydock Re-Opening, Wilmington, Del.—The Bethlehem Shipbuilding Corporation has announced the reopening on December 15, 1923, of the drydock at their Harlan plant, Wilmington, Del., due to the increase in coastwise shipping and the consequent demand for convenient drydocking and repair facilities. They are prepared to give service of any kind at this plant to vessels up to 345 feet in length and with a maximum draft of 12 feet. Modern shops, fully equipped, are available for making all kinds of repairs to hull and machinery.

PORT IMPROVEMENTS

Port Improvements, Philadelphia, Pa.—The city has voted $2,000,000 for port improvements.

Canals, Williams, Cal.—Williams Irrigation District plans to vote on $115,000 bonds for canals, etc.

Cranes, Pittsburgh, Pa.—The Carnegie Steel Company, Carnegie Building, is in the market for two 75-ton and three 10-ton cranes.

Canal, etc., Porterville, Cal.—C. M. Jones and W. W. Slayden plan 1.5-mile canal, small rock dam and power house to develop 182 horsepower. $15,000.

Crane, Urbana, Ill.—R. G. Flaugher Construction Company, 1105 South Race street, is in the market for 1¼-yard full revolving caterpillar tread auto crane.

Contract Awarded, Asbury Park, N. J.—The contract for repairing 650-foot jetty has been awarded to T. Proctor Company, 212 North 5th street, Long Branch, N. J.

Dock, etc., Cincinnati, Ohio.—Cincinnati River Rail Transfer Company will soon take bids for a dock with railway connections along Ohio River. B. L. Baldwin, chief engineer.

Dredging, Tampa, Fla.—The Interstate Investment Company, Citizens Bank Building, is taking bids for dredging 130,000 cubic yards of rock and sand in Tampa Harbor, cost to exceed $25,000.

Canal, San Bernardino, Cal.—Plans are being made for 1,800 lineal foot canal from Waterman Canyon Cutlet, north of San Bernardino, to Twin Creek. $150,000. C. E. Johnson, city engineer.

Levees, Kaufman, Tex.—The Kaufman Levee District 1, Kaufman County, held an election on December 4 for the purpose of voting on $140,000 bonds, repairs and maintenance of present levees.

Seawall Extension, San Francisco, Cal.—The State Board of Harbor Commissioners is making plans for extending seawall south of present grain terminal 1,000 feet, to reclaim 25 acres. $800,000.

Bonds for Inlet, Lake Worth, Fla.—Palm Beach County (West Palm Beach) plans election to vote on $125,000 bonds for inlet 108 feet wide. C. Holstlaw, West Palm Beach, will probably be engineer.

Retaining Wall, Emsworth, Pa.—The Vang Construction Company, Pittsburgh, has been awarded a contract to build a 700-foot retaining wall at Emsworth, Pa., for the Pennsylvania Railroad Company.

Intake Well, Glassmere, Pa.—The Dravo Contracting Company, Pittsburgh, is building an intake well at Glassmere, Pa., for the Allegheny Plate Glass Company, subsidiary of the Ford Motor Company.

Levees, Woodland, Cal.—Reclamation District 1600, c o H. L. Huston, attorney, Woodland, voted $300,000 bonds for reconstruction and realinement of existing levees, and construction of new levees, ditches, etc.

Piers, Baltimore, Md.—Port Commission plans two reinforced-concrete piers, concrete pile foundation, 1,800 feet long, foot of McComas street. $1,750,000. Western Maryland Railway, Standard Oil Building, lessee.

Gates, Washington.—Bids will be received until January 3 by the Bureau of Reclamation, Denver, Colo., for two 5 by 6 feet high pressure emergency gates for Tieton Dam, Yakima Project. D. W. Davis, commissioner.

Dam and Canals, Victorville, Cal. Mojave River Irrigation District plans election to vote on $450,000 bonds for hydraulic and earth-fill type dam and 21 miles of canals. J. B. Lippincott, Central Building, Los Angeles, engineer.

Canals, etc., Bakersfield, Cal.—The Kern River Water Storage District plans to acquire existing canals and irrigation facilities and construct dam on Kern River, to install pumping plants and build new canals, etc. $15,000,000.

Bonds for Dredging, Oakland, Cal.—An election is planned to vote on $4,500,000 bonds for dredging along Larbor front and constructing pier approximately 6,000 feet long, 900 feet wide, with railroad tracks, freight equipment, etc.

Dredging, Philadelphia, Pa. Sealed proposals were received on December 4 at the U. S. Engineer Office, 1505 Race street, Philadelphia, for dredging 290 cubic yards of ledge rock and 2,200 cubic yards of other material in Schuylkill River.

Piers, Toronto, Ont.—R. C. Desrochers, secretary, Department of Public Works, Ottawa, awarded the contract for reconstructing the eastern pier of Eastern Harbor, concrete pier on wood piles, to Port Arthur Construction Company, 36 Toronto street. $48,000.

Piles, California.—L. H. Smith, purchasing agent, State Highway Commission, Sacramento, is taking bids for furnishing nine hundred fifty 40-foot piles, on bank of Klamath River, at bridge site about two miles east of Requa, Humboldt County.

Improving Harbor, Port Stanley, Ont.—The Department of Public Works, Ottawa, awarded the contract for dredging and improving Port Stanley harbor, to Port Arthur Construction Company, Ltd., Excelsior Life Building, Toronto. $50,150.

Cleaning, etc., Columbia, N. C.—Drainage District 1, Tyrrell County, plans cleaning out old canal, constructing new ones, clearing right-of-way, etc., on several projects. $50,000. J. G. Brickhouse, chairman, Board of Drainage Commissioners.

Dock, Bellaire, Ohio.—Carnegie Steel Company, Carnegie Building, Pittsburgh, Pa., awarded the contract for a dock on the Ohio River at Bellaire to Dravo Contracting Company, Diamond Building, Pittsburgh, Pa. Engineers' estimate, $25,000.

Drainage Canal, St. Louis, Mo.—Bids will soon be taken for straightening and constructing 5-mile open drainage canal along bed of the River Des Peres, between Leamington Court and Southwest avenue. $500,000. W. W. Horner, 300 City Hall, engineer.

Harbor Improvements, Oshawa, Ont.—The Department of Public Works, Ottawa, is having surveys made for improving harbor, including new wharves and docks. $150,000. K. M. Cameron, Parliament Building, Ottawa, acting chief engineer.

Levee, New Orleans, La.—F. C. Hymel, president of the Orleans Levee District, New Court Building, awarded the contract for completing Couret-Stanton Levee, 151,000 cubic yards excavation, to Lewis Construction Company, Godchaux Building, $73,365.

Dredging, Newark, N. J.—The Department of Streets and Public Improvements, City Hall, awarded the contract for dredging portion city of Newark channel at Port Newark Terminal to Great Lakes Dredge & Dock Company, 17 Battery place, New York City. $114,000.

Dredging, Corpus Christi, Tex.—Sealed proposals were received on December 21 by H. R. Sutherland, judge Nueces County, for dynamiting and dredging the Nueces River, removing all sunken craft and deepening river bed. $25,000. C. E. Cocke, county engineer.

Dock, etc., Creighton, Pa.—The Pittsburgh Plate Glass Company awarded the contract for a dock, retaining wall, etc., at Creighton, Pa., to the Dravo Contracting Company, Pittsburgh, at a cost of about $100,000. The work involves 7,000 cubic yards of concrete and about 800 piles.

Flood Control, San Antonio, Tex.—The city of San Antonio voted on December 4 on $2,500,000 bonds for flood control, to involve construction of dams, altering courses and removing obstructions from San Antonio River, San Pedro and Alazan Creeks. Address, J. W. Tobin, mayor.

Retaining Wall, etc., Providence, R. I.—D. W. Flint, Inc., Allens avenue, awarded the contract for a 100 by 110 foot reinforced-concrete retaining wall, reinforced-concrete foundations for several storage tanks, etc., to Mahoney & Tucker, 72 Weybosset street. Architect's estimate, $25,000.

Shipping Terminal, Berkeley, Cal.—East Bay Terminal & Manufacturers' Association, 6234 San Pablo avenue, Oakland, plans shipping terminal, Berkeley. $500,000. G. A. Posey, care of Courthouse, Oakland, directing engineer; R. S. Hawley, 1091 43d street, Oakland, consulting engineer.

Steel Shed, New Orleans, La.—Sealed proposals were received by the Board of Commissioners of the port of New Orleans, Suite 200, New Court Building, on December 20, for unloading, erecting and painting the structural steel framing of the Claiborne avenue shed. Requisition, E. D. 14387.

Harbor Improvements, Ontario.—The Department of Public Works, Ottawa, plans improvements to harbor at Chantry Island, Bruce County, $50,000; also dredging and improving Saugreen Harbor, extending and improving piers, etc., Bruce County, $120,000. H. B. Craig, Royal Bank Building, London, engineer.

Levees, etc., Greenwood, Miss.—The Tallahatchie Drainage District 1 is making surveys for a system of levees and drainage canals for flood control of Tallahatchie and Yocona Rivers, district embracing 106,421 acres. Elliott & Harman Engineering Company, Bank of Commerce & Trust Building, Memphis, Tenn., engineers.

Generated on 2024-09-12 12:05 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Lake and Ocean Connection Planned, Lake Worth, Fla.—South Lake Worth Inlet District Commission held an election on December 11 to vote on $125,000 bond issue, to connect Lake Worth with ocean at point 1½ miles north of Boynton Beach, to be 100 feet wide. Also plans to extend Ocean Boulevard over canal on rainbow arch bridge, 24-foot driveway, 5-foot walk on each.

Piers, etc., Philadelphia, Pa.—The Philadelphia & Reading Railway, Reading Terminal, plans additional ore handling facilities including enlarging Pier 14 and installation of ore handling equipment, $915,000; also plans new pier south of Pier A to relieve Pier 14, $600,000; extensive work in boiler house, including new 1,000 horsepower boiler, $915,000. All at Port Richmond. S. T. Wagner, chief engineer.

Shipping Terminal, Seattle, Wash.—The Pacific Steamship Company, L. C. Smith Building, is having plans prepared by H. Bittman, architect and engineer, Securities Building, for the first unit of the ocean shipping terminal, main building 1,000 feet long, 100 feet wide, $500,000. Total $3,000,000-$4,000,000. The company awarded the contract for 5,000 tons of steel for the first unit to the U. S. Steel Corporation, 71 Broadway, New York City.

GOVERNMENT WORK

Dam, Addison, Ky.—U. S. Engineer, P. O. Box 72, Louisville, plans movable dam at Dam 45, Ohio River.

Steel, Florence, Ala.—U. S. Engineer plans to purchase structural steel for powerhouse at Wilson Dam, here.

Dredging, Oakland, Cal.—U. S. Engineer, San Francisco, Cal., is making plans for dredging in Oakland Harbor.

Sheet Piling, Addison, Ky.—The Louisville Engineer Office plans to purchase 350 tons of steel sheet piling for Dam 45, Addison.

Lock, Uniontown, Ky.—U. S. Engineer, P. O. Box 72, Louisville, plans lock at Dam 49, Ohio River, 40,000 cubic yards concrete, etc., near Uniontown.

Riprap, Eureka, Cal.—Bids will probably be taken in January for 160,000 tons of riprap for breakwater at Humboldt Harbor, by the San Francisco Engineer Office.

Riprap, Crescent City, Cal.—The U. S. Engineer, Custom House, San Francisco, will soon receive bids for 80,000 tons of riprap for new breakwater at Crescent City.

Sheet Piling, Addison, Ky.—The U. S. Engineer Office, Louisville, Ky., is preparing specifications for 350 tons of steel sheet piling for Dam 45, Ohio River, at Addison, Ky.

Dredging, Los Angeles, Cal.—U. S. Engineer, 725 Central Building, awarded the contract for dredging 700,000 cubic yards in Los Angeles Harbor to the United Dredging Company, Central Building. $293,790.

Dredging, Wilmington, Del.—The contract for dredging in Tuckerton Creek, New Jersey, has been awarded by the U. S. Engineer to the Delaware Dredging Company, 139 South 3rd Street, Philadelphia. $5,400.

Jetty Repairs, Freeport, Tex.—The contract for repairing the southwest jetty in Freeport Harbor has been awarded by the U. S. Engineer Office, Galveston, to C. Clarke & Company, 111 Security Building, Galveston. $24,413.

Contract Awarded, Pittsburgh, Pa.—The Dravo Contracting Company, Pittsburgh, received the contract for thirty 20-foot sections of steel pipe for hydraulic dredge, at $4,980, for the U. S. Engineer Office, Cincinnati, Ohio.

Contract Awarded, Tacoma, Wash.—The contract for dredging 78,000 cubic yards of city waterway in Tacoma Harbor has been awarded by the Seattle Engineer Office to Henry & McFee, Northern Life Building, Seattle. $21,450.

Lock Construction, Pittsburgh, Pa.—At the opening of tenders by the U. S. Engineer Office on November 22, the Universal Portland Cement Company, Pittsburgh, submitted the lowest bid on 103,000 barrels of cement for lock construction on the Monongahela River. The price amounts to over $250,000.

NEW INCORPORATIONS

Commercial Courier Steamship Company, Ltd., capital $100,000, incorporated under Delaware laws.

McDowell Marine Engine Company, of Wilmington, Del., capital $2,500,000, chartered under Delaware laws.

Merchants & Shipping Insurance Company, of Manhattan, has increased its capital to $250,000 from $200,000.

The Bridgeport-New York Steamship Company, of New York, capital $50,000, chartered under Delaware laws.

The Lake & Ocean Company, of Buffalo, capital $65,000, chartered under New York laws, to operate steamers. Incorporators: W. F. Delaney and L. B. Olshel.

The Columbia Line, capital $50,000, incorporated under Delaware laws. Incorporators: C. V. Thavenot, Frederick W. Miller and Joseph A. Barrett, of New York.

Proctor Marine Supply Company, of Manhattan, capital $10,000, chartered at Albany to do business as ship chandlers. Incorporators: N. L. Proctor, B. Ackerman and C. R. Libby.

The Wrecking & Transportation Company, of Manhattan, capital $75,000, chartered in Albany to engage in commerce. Incorporators: G. E. and E. M. Huntley and A. O'Connor.

Coal Ports Transportation Corporation of Manhattan, capital $10,000, chartered at Albany, to engage in navigation. Incorporators: J. A. Sheridan, A. E. Flanders and H. V. Boyle.

Douglas Steamship Company, of Manhattan, capital $5,000, incorporated at Albany. Incorporators: J. G. Douglas, J. Natale and J. Yuebele. The attorney is L. Schehr of 215 Montague Street, Brooklyn.

The Pomona Steamship Company and Hanley Steamship Company, capital $350,000, chartered under Delaware laws. Incorporators: H. J. Richardson, Charles W. Briggs and G. S. MacCartney, of St. Paul, Minn.

The Gwathmey-Saddler Company, Inc., capital from $12,000 to $50,000, incorporated at Richmond, Va., to manufacture and deal in machinery and conduct a general engineering and construction business. Officers: E. T. Gwathmey, president; L. B. Crayton, secretary, and J. O. Saddler, one of the incorporators.

The Inland Water Line, principal place of business, Jacksonville; capital stock, $250,000; limit of indebtedness, $1,500,000. Corporate existence, 99 years. General nature of business: To own, control and acquire by lease, purchase, construct, or otherwise, steamships, boats, barges and vessels of all kinds or interests therein, and to operate the same for transportation line for passengers and freight of all kinds, etc. Officers and directors: William H. Furrow, president; Damon G. Yerkes, vice-president; J. Henry Blount, secretary and treasurer. Letters patent issued, September 25, 1923.

MARINE SOCIETIES

AMERICA

American Society of Naval Engineers
Navy Department, Washington, D. C.
Secretary-Treasurer—Commander S. M. Robinson, U. S. N., Bureau of Engineering, Navy Department, Washington, D. C.

Society of Naval Architects and Marine Engineers
29 West 39th Street, New York
Secretary and Treasurer—Daniel H. Cox.

National Association of Engine and Boat Manufacturers
29 West 39th Street, New York City
Secretary—R. R. A. Hand.

United States Naval Institute
Naval Academy, Annapolis, Md.
Secretary and Treasurer—Commander H. K. Hewitt, U. S. N.

American Marine Association
15 Park Row, New York
President—Frank J. Shipman.

The New York Tow Boat Exchange
11 Moore St., New York.
Secretary—Irving G. Keller.

Port of New York Authority
11 Broadway, New York
Chairman—E. H. Outerbridge.
Secretary—William Leary.

National Association of Masters, Mates and Pilots
National Secretary—M. D. Tenniswood, 308 Vine St., Camden, N. J.

American Society of Marine Designers
Secretary—B. G. Barnes, 202 Kendrick Ave., Quincy, Mass.

National Marine Engineers' Beneficial Association
Headquarters 311-315 Machinists Building, Washington, D. C.
Secretary-Treasurer—George A. Grubb.

Atlantic Coast Shipbuilders' Association
1600 Walnut Street, Philadelphia, Pa.
Secretary—C. S. King.

American Steamship Owners' Association
11 Broadway, New York
President—Alfred Gilbert Smith.
Vice-President and General Manager—Winthrop L. Marvin.

United States Ship Operators' Association
149 Broadway, New York
President—C. H. Potter.

National Merchant Marine Association
Munsey Bldg., Washington, D. C.
President—Hon. J. E. Ransdell.

The Maritime Association of the Port of New York
78 Broad St., New York City
President—Charles H. Potter.
Secretary—Walter F. Firth.

Lake Carriers' Association
President—Wm. Livingstone, Dime Bank Building, Detroit, Mich.
Secretary—George A. Marr, Rockefeller Building, Cleveland, O.

Neptune Association
21 Pearl St., New York City
Secretary-Treasurer—Captain John F. Milliken.

Ocean Association of Marine Engineers
15 Whitehall St., New York City
Secretary—Bert L. Todd.

CANADA

Grand Council N. A. of M. E. of Canada
Grand Secretary-Treasurer—Neil J. Morrison, Box 886, St. John, N. B.

GREAT BRITAIN

Institution of Naval Architects
5 Adelphi Terrace, London, W. C.

Institution of Engineers and Shipbuilders in Scotland
39 Elmbank Crescent, Glasgow.

Northeast Coast Institution of Engineers and Shipbuilders
Bolbec Hall, Westgate Road, Newcastle-on-Tyne

Institute of Marine Engineers, Incorporated
The Minories, Tower Hill, London.

ITALY

Collegio Degli Ingegneri Naval e Meccanici in Italia

Generated on 2024-09-12 12:01 GMT / https://hdl.handle.net/2027/mdp.39015080127551
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN